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**PACIFIC GAS AND ELECTRIC COMPANY**

**TRANSPORTATION ELECTRIFICATION FOR**  
**SCHOOLS AND STATE PARKS**

**PREPARED TESTIMONY**

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PACIFIC GAS AND ELECTRIC COMPANY  
TRANSPORTATION ELECTRIFICATION FOR  
SCHOOLS AND STATE PARKS  
PREPARED TESTIMONY

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**PACIFIC GAS AND ELECTRIC COMPANY**

**CHAPTER 1**

**SUMMARY OF PG&E'S PROPOSED ELECTRIC VEHICLE  
CHARGING PILOTS FOR SCHOOLS AND STATE PARKS**

PACIFIC GAS AND ELECTRIC COMPANY  
CHAPTER 1  
SUMMARY OF PG&E’S PROPOSED ELECTRIC VEHICLE CHARGING PILOTS  
FOR SCHOOLS AND STATE PARKS

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**PACIFIC GAS AND ELECTRIC COMPANY**  
**CHAPTER 1**  
**SUMMARY OF PG&E'S PROPOSED ELECTRIC VEHICLE**  
**CHARGING PILOTS FOR SCHOOLS AND STATE PARKS**

**A. Introduction (Witness: Lila Grace Brown)**

The purpose of this chapter is to summarize the policies that support Pacific Gas and Electric Company's (PG&E) two proposed Electric Vehicle (EV) pilot programs: (1) EV Charge Schools, and (2) EV Charge Parks. PG&E is filing these two pilot programs, pursuant to Assembly Bills (AB) 1082 and 1083, and consistent with the January 24, 2018 Assigned Commissioner's Ruling (ACR).<sup>1</sup> In addition, this testimony outlines how PG&E's proposed pilot programs will meet the objectives set forth in AB 1082 and AB 1083, complement PG&E's existing clean transportation portfolio, and accelerate transportation electrification in PG&E's service territory.

California leads the nation in EV adoption, but more rapid adoption is needed to meet the state's ambitious Zero Emission Vehicle (ZEV) targets. Governor Brown has set a goal of five million ZEVs on the road by 2030, with 250,000 vehicle chargers installed by 2025.<sup>2</sup> The California Energy Commission (CEC) anticipates that even more charging infrastructure is needed to support five million ZEVs on the road by 2030.<sup>3</sup>

As noted in both AB 1082 and AB 1083, California is behind schedule. More needs to be done to install the electric vehicle charging infrastructure that will support and enable these critical electric vehicle goals.<sup>4</sup>

Charging infrastructure programs that exist today—provided by private industry, non-profits, the public sector, and utilities—tend to deploy charging

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<sup>1</sup> ACR in Rulemaking 13-11-007, ACR Providing Guidance to Utilities Electing to Submit Applications, Pursuant to AB 1082 and AB 1083, January 24, 2018.

<sup>2</sup> Executive Order B-48-18, January 26, 2018.

<sup>3</sup> CEC Staff Report, "California Plug-In Electric Vehicle Infrastructure Projections: 2017-2025," CEC-600-2018-001, March 16, 2018.

<sup>4</sup> Transportation Electrification: Electric Vehicle Charging Infrastructure: School Facilities and Other Educational Institutions, AB 1082, filed October 10, 2017.  
Transportation electrification: Electric Vehicle Charging Infrastructure: State Parks and Beaches, AB 1083, filed October 10, 2017.

1 infrastructure at sites with relatively low installation costs, few barriers to  
2 infrastructure development, and anticipated high utilization. These sites  
3 represent low hanging fruit, and so will predominantly be the first locations to  
4 receive charging infrastructure. However, to meet the state's targets, charging  
5 infrastructure will need to be available across the state at a wide range of  
6 locations where people live, work, learn, and travel. This will necessitate  
7 charging infrastructure deployment in locations with higher installation costs  
8 and/or potentially lower utilization in early years.

9 Through these proposed pilots, PG&E aims to test the hypothesis that  
10 investments in charging infrastructure in hard-to-reach, yet highly visible  
11 locations, like schools and state parks, can facilitate increased EV adoption by  
12 increasing awareness of and education around EVs. The learnings from these  
13 pilots can inform future investments to facilitate EV adoption in schools, parks,  
14 and other hard-to-reach sites in support of California's ZEV goals.

15 In the following chapters, PG&E describes in detail its proposed pilots in  
16 response to AB 1082 and AB 1083:

- 17 • Chapter 2 – EV Charge Schools: EV charging infrastructure to be built at  
18 public schools:
  - 19 – Level 2 EV charging infrastructure for personal vehicles;
  - 20 – Educational events and curriculum; and
  - 21 – Forecast Cost: \$1.1 million in expense and \$4.7 million in capital  
22 expenditures.
- 23 • Chapter 3 – EV Charge Parks: EV charging infrastructure to be built at sites  
24 managed by the California Department of Parks and Recreation  
25 (State Parks):
  - 26 – Level 2 EV charging infrastructure for State Parks' fleet vehicles;
  - 27 – Level 2 and DC fast chargers for state park visitors;
  - 28 – Marketing, Education, and Outreach (ME&O); and
  - 29 – Forecast Cost: \$1.3 million in expense and \$4.2 million in capital  
30 expenditures.
- 31 • Chapter 4 – Program Costs, Results of Operations, and Cost Recovery:  
32 provides a summary of the revenue requirement associated with the pilot  
33 programs included in this application and proposed cost recovery.

Table 1-1 below is a summary of PG&E's requested costs. Detailed support for PG&E's request is provided in the subsequent chapters of this testimony. PG&E has developed detailed capital expenditure and expense forecasts in support of these pilots. The costs presented in these chapters were developed using conventional electric distribution estimating methods, market data for EV charging units, and experience with large capital projects for program management costs. Further, estimates for other costs were developed using experience with customer outreach and education as well as conventional web development costs. All costs included in this application are incremental to existing approved transportation electrification programs and costs underlying the 2017 General Rate Case adopted revenue requirements.

**TABLE 1-1  
EV CHARGE SCHOOLS AND PARKS PILOT CAPITAL AND EXPENSE  
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Capital	Expense	Total
1	<u>EV Charge Schools</u>			
2	Charging Infrastructure With Contingency	\$4,295	\$267	\$4,562
3	Program Management Organization	369	—	369
4	ME&O	—	833	833
5	Total EV Charge Schools With Contingency	\$4,664	\$1,100	\$5,764
6	<u>EV Charge Parks</u>			
7	Charging Infrastructure With Contingency	\$3,890	\$398	\$4,288
8	Program Management Organization	317	—	317
9	Site Selection, ME&O	—	932	932
10	Total EV Charge Parks With Contingency	\$4,207	\$1,330	\$5,537
11	Total EV Charge Schools and Parks Pilot Cost With Contingency	\$8,871	\$2,430	\$11,301

## **B. Schools Are Key Sites to Increase EV Awareness and Education**

AB 1082 authorizes California's electric utilities to propose pilot programs for the installation of EV charging stations at school facilities and other educational institutions. Schools are an important place for EV charging infrastructure due to the large role they play in the daily life of Californians. There are more than 6.8 million Californians enrolled in both public and charter K-12 schools, and

1 more than 300,000 teachers.<sup>5</sup> There are 1.8 million full-time equivalent students  
2 and 256,000 faculty and staff at California’s public higher education institutions.<sup>6</sup>  
3 This means that nearly one quarter of Californians are attending and working at  
4 schools on a daily basis—and many more Californians, such as parents and  
5 families of students, are also part of a school community. As such, the school  
6 system represents an important opportunity to increase access to EV charging  
7 as more Californians adopt EVs.

8 Furthermore, schools are a natural place to raise education and awareness.  
9 Schools are a perfect venue to educate students, staff, and community members  
10 about the benefits of EV ownership and how transportation electrification can  
11 help California meet its climate and air quality goals. By combining EV charging  
12 with an educational curriculum, the proposed pilot also serves as a learning  
13 opportunity to educate schools and the communities they serve about clean  
14 transportation.

### 15 **C. State Parks Provide a Unique Opportunity to Lower Barriers to EV** 16 **Adoption**

17 AB 1083 authorizes California’s electric utilities to propose pilot programs to  
18 install EV charging infrastructure in state parks. EV charging at state parks  
19 provides an opportunity to: (1) enable visitor and fleet charging; (2) link remote  
20 areas of the state with EV charging; and (3) increase awareness of and  
21 education around availability of EV charging infrastructure.

22 Governor Brown’s 2016 ZEV Action Plan set a procurement target for state  
23 fleets that 50 percent of annual light-duty fleet purchases would be ZEVs by  
24 2025.<sup>7</sup> The State Parks’ fleet currently includes over 1,100 vehicles, not  
25 including heavy-duty construction equipment, of which 600 are subject to the  
26 ZEV mandate. Today, the State Parks’ fleet has 37 pure ZEVs and 27 plug-in  
27 EVs. More ZEVs are currently on order, and State Parks plans to order still

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5 See California Department of Education, “Fingertip Facts on Education in California,”  
<https://www.cde.ca.gov/ds/sd/cb/ceffingertipfacts.asp>. Accessed July 22, 2018.

6 Legislative Analyst’s Office, “The 2017-2018 Budget: Higher Education Analysis,  
Figure 1.” Includes California Community Colleges, California State University, and the  
University of California. <http://lao.ca.gov/Publications/Report/3559>. Accessed July 22,  
2018.

7 Office of Governor Edmund G. Brown Jr., “2016 ZEV Action Plan,” October 2016.  
[https://www.gov.ca.gov/wp-content/uploads/2017/09/2016\\_ZEV\\_Action\\_Plan.pdf](https://www.gov.ca.gov/wp-content/uploads/2017/09/2016_ZEV_Action_Plan.pdf).



1 more in 2019. State Parks has estimated that it will need 294 Level 2 chargers  
2 to meet fleet needs and fulfill the objectives of the Governor’s 2016 ZEV Action  
3 Plan.<sup>8</sup> EV Charge Parks will install the charging infrastructure that helps State  
4 Parks move towards these goals.

5 More than 74 million visitors come to the 280 properties of the State Park  
6 system each year.<sup>9</sup> As EV adoption increases, more of these visitors will need  
7 a place to charge their cars in the parks. EV Charge Parks helps to provide this  
8 charging.

9 At the same time, EV Charge Parks also spreads awareness of and  
10 education around transportation electrification which can further accelerate EV  
11 adoption. The presence of EV charging in remote locations like parks can help  
12 assuage visitor concerns about the viability of EVs for long trips. Visitors who do  
13 not own EVs, or those who did not feel comfortable driving an EV to a distant  
14 park because of range anxiety, may start to feel more confident in charger  
15 accessibility and their ability to own an EV for use on longer trips.

#### 16 **D. Utilities Are Particularly Well-Suited to Provide EV Charging in Schools** 17 **and State Parks**

18 The California Legislature articulates a need for utility assistance in installing  
19 EV charging infrastructure to help the state meet its goals. In both AB 1082 and  
20 AB 1083, the Legislature highlights that California is behind schedule in its  
21 progress towards the Governor’s goal of adequate infrastructure to support  
22 one million ZEVs by 2020.<sup>10</sup> This target is based on a goal of 1.5 million ZEVs  
23 on the road by 2025.<sup>11</sup> Now that the targets have increased to five million ZEVs  
24 on the road by 2030,<sup>12</sup> even more needs to be done to install the EV charging  
25 infrastructure that will support and enable these critical transportation goals.

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<sup>8</sup> Email correspondence with Ted Novack, California State Department of Parks and Recreation, July 9, 2018 and July 23, 2018.

<sup>9</sup> California State Parks, “Statistical Report: 2015/16 Fiscal Year.”  
<https://www.parks.ca.gov/pages/795/files/15-16%20Statistical%20Report%20FINAL%20ONLINE.pdf>.

<sup>10</sup> AB 1082, Section 1c. and AB 1083, Section 1c.

<sup>11</sup> Executive Order, B-16-2012, March 23, 2012.

<sup>12</sup> Executive Order B-48-18, January 26, 2018.

1 Utilities play an important role in helping to accelerate EV charging  
2 infrastructure to help the state meet its goals, especially in sectors and  
3 geographies, like schools and state parks, where charging will be slow to  
4 develop without additional assistance and funding. Furthermore, other existing  
5 infrastructure programs do not address schools and state parks specifically and  
6 so can fail to meet the needs of some of these sites, as described in more detail  
7 in Chapters 2 and 3. Finally, PG&E is well-suited to leverage its work in other  
8 transportation electrification programs, such as EV Charge Network, Fleet  
9 Ready, and Fast Charge to provide EV charging at schools and state parks.<sup>13</sup>

10 **E. Proposed Pilots Are Designed to Minimize Costs and Maximize Benefits**

11 PG&E has made efforts to minimize costs while maximizing benefits  
12 associated with the EV Charge Schools and EV Charge Parks pilots. For  
13 example, costs related to both pilots' operations have been reduced by  
14 leveraging the same Program Management Office established for the EV  
15 Charge Network program to manage, coordinate and monitor the proposed  
16 pilots.

17 Additionally, ME&O to enroll schools in EV Charge Schools was designed to  
18 leverage existing relationships and partnerships, and to build off the EV Charge  
19 Network website and marketing collateral that has already been developed.  
20 This will enable the pilot to effectively reach schools more cost efficiently.

21 EV Charge Parks will include an option for off-grid charging at some  
22 locations. This enables the pilot to provide charging solutions at parks that  
23 would otherwise require costly electric infrastructure development to install  
24 grid-connected chargers.

25 Chapters 2 and 3 provide more detail on specific ways that EV Charge  
26 Schools and EV Charge Parks are designed to minimize costs and maximize  
27 benefits.

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<sup>13</sup> Programs approved in the following Decisions (D.): D.16-12-065 and D.18-05-040.

1 **F. Proposed Pilots Reduce Greenhouse Gas Emissions and Contribute to**  
2 **Air Quality Improvements**

3 California has set ambitious greenhouse gas (GHG) reduction targets,  
4 aiming to reduce emissions to 40 percent below 1990 levels by 2030.<sup>14</sup> The  
5 transportation sector contributes almost 40 percent of California's GHG  
6 emissions.<sup>15</sup> Therefore, deep emissions reductions from the transportation  
7 sector will be required for California to meet its goals.

8 In addition, California has a pressing need to improve air quality, particularly  
9 in the non-attainment zones in the San Joaquin Valley which exceed the  
10 National Ambient Air Quality standards.<sup>16</sup> Air quality in the San Joaquin Valley  
11 is among the worst in the nation. A significant amount of these pollutants can be  
12 attributed to on-road mobile sources.<sup>17</sup>

13 PG&E's proposed EV Charge Schools and EV Charge *Parks* facilitate  
14 transportation electrification not only by providing charging infrastructure in  
15 select locations, but also by increasing awareness of and education around  
16 EV charging availability and clean transportation more generally. There is still a  
17 lack of awareness among consumers around EVs and EV charging  
18 infrastructure availability.<sup>18</sup> Through education, the proposed pilots aim to  
19 accelerate EV adoption and so will contribute to GHG emissions reductions and  
20 air quality improvements from the transportation sector.

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14 California Global Warming Solutions Act of 2006: emissions limit. Senate Bill (SB) 32. Filed September 08, 2016.

15 California Air Resources Board, "California Greenhouse Gas Emissions for 2000 to 2016," [https://www.arb.ca.gov/cc/inventory/pubs/reports/2000\\_2016/ghg\\_inventory\\_trends\\_00-16.pdf](https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf).

16 U.S. Environmental Protection Agencies, "San Joaquin Valley: EPA Activities for Cleaner Air," <https://www.epa.gov/sanjoaquinvalley/epa-activities-cleaner-air>. Accessed July 22, 2018.

17 San Joaquin Valley Air Pollution Control District, "2017-18 Report to the Community," [http://valleyair.org/General\\_info/pubdocs/2017-18-Annual-Report.PDF](http://valleyair.org/General_info/pubdocs/2017-18-Annual-Report.PDF)

18 Kurani, Ken and Scott Hardman, "Automakers and Policymakers May Be on A Path to Electric Vehicles; Consumers Aren't," UC Davis Institute of Transportation Studies, GreenLight Blog, <https://its.ucdavis.edu/blog-post/automakers-policymakers-on-path-to-electric-vehicles-consumers-are-not>. Accessed July 23, 2018.

1 **G. Proposed Pilots Fairly Compete With Non-Utility Enterprises**

2 EV Charge Schools and EV Charge Parks include utility make-ready  
3 infrastructure and direct customer incentives comparable to those previously  
4 approved by the California Public Utilities Commission (Commission) in PG&E's  
5 EV Charge Network and Senate Bill (SB) 350 Transportation Electrification  
6 decisions as not significantly or unfairly competing with non-utility enterprises.<sup>19</sup>  
7 This make-ready infrastructure will provide support and incentives to non-utility  
8 EV Supply Equipment Providers, site-hosts, customers, and other non-utilities  
9 for whom the costs of EV charging infrastructure may be too large to allow them  
10 to make investments and long-term commitments to transportation  
11 electrification.

12 **H. PG&E's Pilots for EV Charging in Schools and State Parks Complement**  
13 **and Enhance PG&E's Existing Transportation Electrification Portfolio**

14 PG&E's proposed EV Charge Schools and EV Charge Parks pilots aim to  
15 complement its existing transportation electrification programs and pilots,  
16 leveraging the resources and structures put in place to implement those  
17 programs.

18 While some schools and state parks are already eligible for some of PG&E's  
19 existing transportation electrification programs and pilots, EV Charge Schools  
20 and EV Charge Parks were designed with input from schools and State Parks to  
21 meet the specific needs of those sites. These specially tailored offerings will be  
22 piloted to understand whether their higher per port expense can be justified  
23 through increases in EV awareness and adoption that may be achievable by  
24 installing EV infrastructure at highly visible, education-focused sites.

25 Chapters 2 and 3 provide more detail on the specific ways that EV Charge  
26 Schools and EV Charge Parks complement and enhance PG&E's existing  
27 transportation electrification portfolio.

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<sup>19</sup> Make-ready infrastructure for EVs includes the Service Connection to the meter and the Supply Infrastructure from the meter to the charger.

1 **I. PG&E's Proposed EV Charge Parks and EV Charge Schools Pilots Will**  
2 **Leverage the Learnings from Existing PG&E Transportation Electrification**  
3 **Programs**

4 Learnings developed through deployment and evaluation of existing  
5 transportation electrification programs were used to design EV Charge Parks  
6 and EV Charge Schools, and will be used in the pilot implementation to  
7 streamline the process, reducing costs and improving customer experience.

8 Specific learnings include:

- 9 • EV Charge Network conducted research to inform the ME&O used to solicit  
10 site hosts for the program. The findings from this research will be re-used  
11 as applicable to solicit site hosts for EV Charge Schools;
- 12 • Actual costs from existing charger installations will be used to benchmark  
13 costs for the EV Charge Parks and EV Charge Schools pilots;
- 14 • Results of competitive procurement processes for Level 2 chargers will be  
15 leveraged for the Level 2 chargers deployed under EV Charge Parks and  
16 EV Charge Schools; and
- 17 • Best practices in program management, site design, and site construction  
18 developed during implementation of EV Charge Network will be used in  
19 EV Charge Parks and EV Charge Schools.

20 **J. Conclusion**

21 PG&E appreciates the Commission's leadership on transportation  
22 electrification and the opportunity to specifically address EV infrastructure needs  
23 in schools and state parks. As described further in Chapters 2 and 3, PG&E's  
24 proposed pilots for schools and state parks supports the state's goals and  
25 comply with the guidance of the Assigned Commissioner's Ruling. If approved  
26 by the Commission, PG&E's pilots will enhance PG&E's existing portfolio by  
27 providing EV charging infrastructure specifically for schools and state parks.  
28 The learnings from these pilots will enable the industry to better reach these  
29 segments in the future.

30 Schools play an important role in the daily lives of millions of Californians  
31 and are an essential location for charging infrastructure so that teachers, staff,  
32 students, parents, and other members of the school community can access  
33 EV charging. Likewise, charging in state parks can enable EVs in remote areas  
34 of the state, electrification of state fleet vehicles, and enables Californians and

1 visitors to use EVs for longer trips. EV charging infrastructure at both schools  
2 and state parks also creates an opportunity to educate the public about the  
3 benefits of transportation electrification and increase awareness of the  
4 availability of EV charging to help lower this barrier to EV adoption. With these  
5 pilots, PG&E will expand transportation electrification statewide, while supporting  
6 California's leadership and climate goals.

**PACIFIC GAS AND ELECTRIC COMPANY**

**CHAPTER 2**

**EV CHARGE SCHOOLS**

PACIFIC GAS AND ELECTRIC COMPANY  
CHAPTER 2  
EV CHARGE SCHOOLS

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**PACIFIC GAS AND ELECTRIC COMPANY**  
**CHAPTER 2**  
**EV CHARGE SCHOOLS**

**A. Introduction and Pilot Summary (Witness: Lila Grace Brown)**

This chapter describes in detail Pacific Gas and Electric Company's (PG&E) proposed Electric Vehicle (EV) Charge Schools pilot to provide EV charging infrastructure to schools pursuant to Assembly Bill (AB) 1082.

**1. Pilot Objectives**

The objectives of EV Charge Schools are to:

- Facilitate deployment of EV charging infrastructure to enable drivers to charge EVs on campuses where they work or learn;
- Increase availability of chargers in communities where EV adoption and EV charger availability are low relative to other parts of PG&E's territory;
- Spur EV adoption more broadly by increasing awareness of EVs; and
- Pilot educational programs to increase EV education, particularly among young future drivers.

**2. Pilot Overview**

EV Charge Schools is designed to meet the specific EV charging needs of schools, a target segment that the California Legislature identified in AB 1082.

Under the EV Charge Schools pilot, PG&E will install Level 2 chargers at the campuses of public schools, likely targeting installations in the Counties of Alameda, Fresno, and San Joaquin. These are three of the top five counties in PG&E's service territory in terms of number of public schools, each with a high percentage of their populations living in disadvantaged communities (DAC)<sup>1</sup> based on the CalEnviroScreen 3.0 analysis and significant need for workplace and public Level 2 charging

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<sup>1</sup> AB 1082, Sec. 2, (h): "An electrical corporation shall prioritize in its proposal school facilities and other educational institutions located in disadvantaged communities. For these purposes, "disadvantaged communities" means communities identified by the California Environmental Protection Agency pursuant to the Greenhouse Gas Reduction Fund Investment Plan and Communities Revitalization Act (Chapter 4.1 (commencing with Section 39710) of Part 2 of Division 26 of the Health and Safety Code)."

1 based on the California Energy Commission’s EV Infrastructure Projection  
2 Tool (EVI-Pro).<sup>2</sup> EV Charge Schools is focused primarily on public  
3 elementary and high schools, though approximately 10 percent of  
4 EV Charge Schools sites could include public higher education campuses  
5 located in these counties.

6 PG&E is targeting approximately 22 campuses to install chargers under  
7 EV Charge Schools. Each campus participating in the pilot will have the  
8 option of installing either four or six Level 2 charging ports, resulting in  
9 approximately 88-132 charging ports installed in total through the  
10 EV Charge Schools pilot. PG&E intends to select sites and schools based  
11 on EV deployment and forecast utilization criteria similar to the criteria used  
12 in PG&E’s EV Charge Network (EVCN) Program approved in Decision  
13 (D.) 16-12-065.

14 PG&E will build, own, operate and maintain the EV Service Connection  
15 and EV Supply Infrastructure for all sites.

16 For the EV charger, each campus can choose between the following  
17 two ownership options:

- 18 1. PG&E Ownership: PG&E owns, operates, and maintains the  
19 EV charger and associated network installed under EV Charge Schools.  
20 The school will incur a participation payment. EV charger vendors  
21 already selected under EVCN will be used in EV Charge Schools.
- 22 2. Site-Host Ownership: The school owns, operates, and maintains the  
23 EV chargers and associated network. The school receives a rebate for  
24 the charger purchase. Vendors already qualified and approved under  
25 EVCN will be used in EV Charge Schools.

26 These ownership options are offered under EV Charge Schools to meet  
27 the needs of schools, particularly schools in DACs, which can have  
28 budget constraints that prevent them from investing beyond the immediate  
29 needs of their day-to-day operations. This is particularly challenging with  
30 EV charging stations which require capital to install the chargers as well as  
31 ongoing expenses associated with the operations and maintenance of the

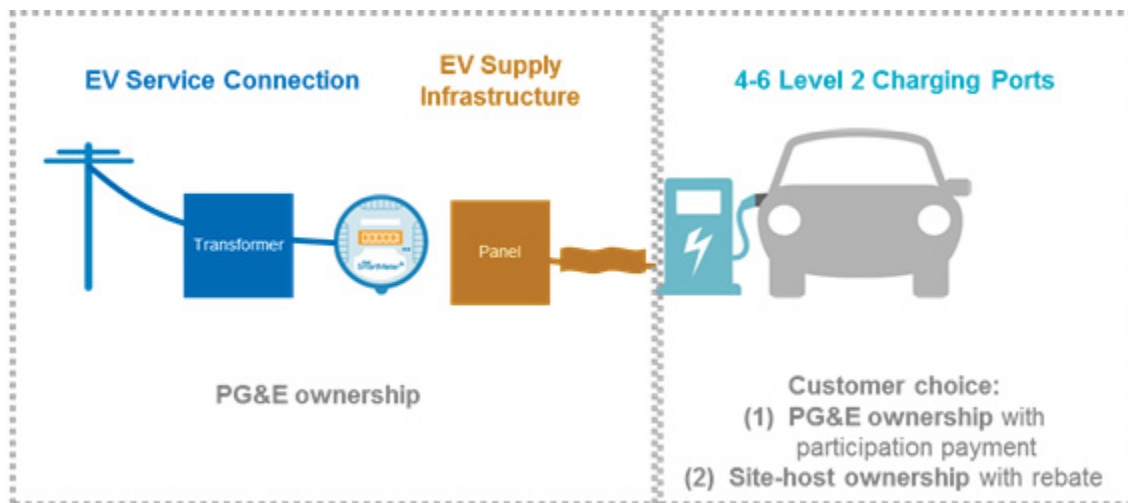
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<sup>2</sup> National Renewable Energy Laboratory, “CEC EV Infrastructure Projection Tool (EVI-Pro),” <https://maps.nrel.gov/cec/>. Accessed July 13, 2018.

EV chargers. Providing the option of PG&E ownership or the option of school ownership with a rebate could therefore reduce financial hurdles and increase the uptake of EV chargers at schools.

The proposed structure for a site within EV Charge Schools, with infrastructure bucketed by ownership, is depicted in Figure 2-1 below.

**FIGURE 2-1  
PROPOSED OWNERSHIP STRUCTURES FOR EV CHARGE SCHOOLS**



PG&E will be responsible for outreach and marketing of EV Charge Schools to acquire sites.

A key element of the EV Charge Schools pilot is an educational program to increase understanding and awareness of EVs among students and members of the school communities. Therefore, the EV Charge Schools pilot also includes development, implementation, and evaluation of clean transportation-related curricula, as well as on-campus events to raise awareness of EVs and the availability of EV charging for the school community.

### **3. Fit With Existing Transportation Electrification Portfolio**

EV Charge Schools targets a specific high-priority segment for EV charging, providing a customized program to meet the specific needs of schools. This customization is meant to increase charging availability in schools. Given that these are sites where future and early drivers go to learn, they could be pivotal sites to enhance EV awareness and adoption.

PG&E currently has three transportation electrification pilots and programs that could install EV charging infrastructure at schools:

- EV Charge Network (EVCN): PG&E's EVCN Program aims to install up to 7,500 EV charging ports at workplaces and multi-unit dwellings, with a goal of 15 percent of installations in DACs from 2018 through 2020. Many schools qualify as workplaces that can apply for EVCN.
- Fleet Ready: PG&E's Fleet Ready Program aims to complete 700 make-ready installations to support up to 8,800 charging ports for medium and heavy-duty fleets by 2024, with at least 15 percent of the infrastructure budget serving transit agencies and at least 25 percent of the budget for installations in DACs. Under Fleet Ready, schools or school districts can apply for charging infrastructure to support electrification of their medium- and heavy-duty fleet vehicles, like school buses.
- Electric School Bus Renewables Integration Pilot: In the Electric School Bus Renewables Integration pilot, PG&E is working with the Pittsburgh Unified School District to test managed charging of electric school buses to consume electricity during peak renewables generation periods.

Fleet Ready and the Electric School Bus Renewables Integration pilot each focus on charging infrastructure of electric school buses, or other medium- and heavy-duty vehicles at schools. In addition, the Electric School Bus Renewables Pilot is limited to one school district. Therefore, these pilots meet different market needs and are more limited than the proposed EV Charge Schools pilot which is designed to provide charging for light-duty personal vehicles.

EV Charge Schools is similar to the EVCN Program because it provides Level 2 charging to schools for use by personal vehicles. However, EV Charge Schools has three distinct differences from EVCN, designed to specifically meet the needs of schools:

- 1) Number of Ports: Under EV Charge Schools, schools can elect to install either four or six Level 2 charging ports, whereas sites participating in EVCN generally install a minimum of ten charging ports. The costs for EVCN were developed for sites with a higher number of ports, necessitating this minimum port requirement to meet program targets.

1 Cost estimates for EV Charge Schools were developed assuming sites  
2 with six Level 2 charging ports. This will enable smaller campuses with  
3 limited parking spaces to participate in EV Charge Schools.

4 2) Participation Payment and Rebate Levels: Under EV Charge Schools,  
5 PG&E has reduced the participation payment and increased the rebate  
6 amount for schools participating in the program. Schools will have the  
7 option of owning the charger themselves and receiving a rebate for the  
8 full base cost of the charger, or the school can elect for PG&E to own  
9 the charger and incur a participation payment equal to the difference  
10 between the base cost of the charger and the cost of the charger  
11 selected. This is the same offer that is used for multi-unit dwellings in  
12 DACs for EVCN. These modified ownership options for schools that  
13 participate in EV Charge Schools will reduce costs for schools which  
14 often do not have the budget for EV chargers, making it easier for  
15 schools to participate in the program.

16 3) Expanded Education and Teacher Training: EV Charge Schools will  
17 include additional educational components, designed to increase  
18 awareness of the chargers and improve understanding and perceptions  
19 of EVs in the school community. These components include  
20 educational events on-campus, and clean transportation-related  
21 curricula to be designed and rolled out to teachers at participating  
22 schools, likely through teacher workshops and the provision of  
23 classroom materials.

24 These three features make EV Charge Schools distinct from EVCN and  
25 will enable PG&E to test whether a specifically designed program for a  
26 high-priority site, like a school, can in fact have a broader impact on EV  
27 adoption in the community. PG&E will consider impacts like utilization of the  
28 chargers, EV adoption near the school, and awareness and perceptions of  
29 EVs amongst the school community to evaluate the impact of the pilot. The  
30 learnings from this pilot will be used to inform the design of future  
31 transportation electrification programs.

#### 32 **4. Leveraged Funding and Partnerships**

33 PG&E will leverage existing approved programs to reduce costs and  
34 streamline implementation of EV Charge Schools. The implementation of

1 EVCN creates a number of opportunities for EV Charge Schools to leverage  
2 existing program structure. This includes the following:

- 3 • Program Management Organization (PMO): PG&E has developed a  
4 robust PMO under EVCN. The EV Charge Schools Program will benefit  
5 by adding incremental staff to this organization while building on the  
6 existing structure and staff employed as part of the EVCN PMO.
- 7 • EV Charger Vendor Qualification and Procurement Process: PG&E has  
8 established both a qualification process and procurement process for  
9 Level 2 EV chargers and the associated charger network as part of  
10 EVCN. PG&E intends to use vendors already qualified and approved  
11 under EVCN in EV Charge Schools. Using this list of qualified vendors  
12 will reduce overall costs and provide for a more streamlined  
13 implementation of EV Charge Schools.
- 14 • Engineering and Construction Contractors: PG&E implemented a  
15 similar procurement process to select engineering and construction  
16 contractors who design and install EV chargers under EVCN. PG&E  
17 intends to leverage these contractors for the EV Charge Schools  
18 Program.
- 19 • Construction Specifications and Standards: PG&E has established  
20 construction specifications and standards throughout the roll-out of  
21 EVCN. For example, PG&E has designed a pre-cast concrete base  
22 used in the installation of EV chargers for EVCN. This is one example  
23 of standards developed in the EVCN that can also be used in EV  
24 Charge Schools to reduce implementation costs.
- 25 • Existing Marketing and Communication Channels: Throughout the  
26 implementation of EVCN, PG&E has developed a network of community  
27 organizations and marketing channels that can be leveraged in EV  
28 Charge Schools. Additionally, PG&E will leverage the existing network  
29 and communication channels of the PG&E Public Affairs team, the  
30 PG&E Foundation, and other relevant groups at PG&E to outreach  
31 to schools.
- 32 • Existing Educational Programs: Today, PG&E administers the  
33 Energenius Program, which provides free materials for educators to  
34 bring energy- and environment-related topics into their classrooms. The



1 Energenius program includes a “Transportation, Energy, and the  
2 Environment” program for students in grades six and above which  
3 includes a teacher lesson plan and materials for students. PG&E’s  
4 experience developing and implementing these types of educational  
5 programs will be leveraged to develop clean transportation-focused  
6 education for the schools participating in EV Charge Schools.

7 In addition to building off of the programmatic infrastructure and  
8 learnings developed in EVCN, PG&E will leverage the expertise and  
9 connections that external partners provide. The County Offices of Education  
10 are critical to the success of EV Charge Schools. Therefore, PG&E intends  
11 to work closely with the County Offices of Education in San Joaquin, Fresno,  
12 and Alameda Counties to implement EV Charge Schools.

13 **5. Pilot Cost Summary (Witnesses: Lila Grace Brown and**  
14 **Benedict Chung)**

15 PG&E requests \$4.66 million in capital and \$1.10 million in expense for  
16 a total cost of \$5.76 million for the approximately two-year deployment of the  
17 EV Charge Schools pilot and the ongoing costs necessary to support and  
18 maintain the program investments placed in service through 2023 (or the  
19 next General Rate Case (GRC) following the 2020 GRC). All costs  
20 requested in this chapter are incremental to existing approved transportation  
21 electrification programs and costs underlying the 2017 GRC adopted  
22 revenue requirements. Costs are outlined in Table 2-1.



**TABLE 2-1**  
**EV CHARGE SCHOOLS DETAILED COST SUMMARY**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
1	<b>Charging Site Costs</b>							
2	<u>Capital Costs</u>							
3	Charging Site Service Connection	Benedict Chung	\$273	\$563	\$290	-	-	\$1,126
4	Charging Site EV Supply Infrastructure	Benedict Chung	508	1,049	541	-	-	2,099
5	Charging Site Easements (fees and services)	Benedict Chung	16	33	17	-	-	66
6	Charger & Network Capital Costs	Lila Grace Brown	95	197	101	-	-	393
7	Charging Site Service Connection Capital Replacement	Benedict Chung	2	5	6	7	7	26
8	Charging Site EV Supply Infrastructure Capital Replacement	Benedict Chung	2	5	6	7	7	26
9	Charging Capital Contingency	Benedict Chung	134	278	144	2	2	560
10	Capital Subtotal with contingency		\$1,030	\$2,129	\$1,106	\$15	\$16	\$4,295
11	<u>Expense Costs</u>							
12	Charger & Network O&M Costs	Lila Grace Brown	\$12	\$37	\$50	\$51	\$52	\$201
13	Program Participation Payment	Lila Grace Brown	-	-	-	-	-	-
14	Charging Site Service Connection Maintenance	Benedict Chung	1	3	4	4	4	15
15	Charging Site EV Supply Infrastructure Maintenance	Benedict Chung	1	3	4	4	4	15
16	Charging Expense Contingency	Benedict Chung	2	6	9	9	9	35
17	Expense Subtotal with contingency		\$16	\$49	\$66	\$67	\$68	\$267
18	<u>Charging Site Cost Subtotal</u>							
19	Capital Subtotal with contingency		\$1,030	\$2,129	\$1,106	\$15	\$16	\$4,295
20	Expense Subtotal with contingency		\$16	\$49	\$66	\$67	\$68	\$267

**TABLE 2-1**  
**EV CHARGE SCHOOLS DETAILED COST SUMMARY**  
**(THOUSANDS OF NOMINAL DOLLARS)**  
**(CONTINUED)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
21	<b>Other Costs</b>							
22	<u>Capital Costs</u>							
23	Program Management Organization	Benedict Chung	\$93	\$182	\$94	-	-	\$369
24	Capital Subtotal		\$93	\$182	\$94	-	-	\$369
25	<u>Expense Costs</u>							
26	Marketing and Outreach	Lila Grace Brown	\$199	\$121	\$61	-	-	\$381
27	Education	Lila Grace Brown	195	185	72	-	-	\$452
28	Expense Subtotal		\$394	\$306	\$133	-	-	\$833
29	<u>Other Costs Subtotal</u>							
30	Capital Subtotal		\$93	\$182	\$94	-	-	\$369
31	Expense Subtotal		\$394	\$306	\$133	-	-	\$833
32	<u>EV Charge Schools Costs</u>							
33	Capital with contingency		\$1,123	\$2,311	\$1,200	\$15	\$16	\$4,664
34	Expense with contingency		\$410	\$355	\$200	\$67	\$68	\$1,100
35	EV Charge Schools Total with contingency		\$1,533	\$2,665	\$1,400	\$82	\$84	\$5,764

1 PG&E's reference case used to develop its budget includes an estimate  
2 of 22 installations, and an assumption of 100 percent of the EV chargers  
3 owned by PG&E for the purposes of cost estimation. However, the costs for  
4 the EV Charge Schools pilot are uncertain, due to unique features of EV  
5 charging at schools. Schools can be in different types of locations  
6 (e.g., rural, suburban, urban) and are subject to requirements that can result  
7 in higher or lower per site costs. For example, because public schools are  
8 subject to the rules of the Department of State Architect, additional reviews  
9 and approvals may be required at school sites, which can lengthen time and  
10 costs associated with the installation. Also, additional inspections may be  
11 needed depending on the site.

12 Actual costs and specific sites will vary from those used to develop  
13 these cost estimates, and PG&E will not fund EV Charge Schools during the  
14 pilot timeframe unless funds remain available to fund the infrastructure  
15 under the overall cost cap. Conversely, if demand for EV Charge Schools is  
16 less than the estimated costs and resulting revenue requirements during the  
17 approximately two-year period of the pilot, PG&E may file a Tier 1 Advice  
18 Letter to extend the program deployment length to utilize the remaining  
19 program funds.

## 20 **B. Pilot Design (Witness: Lila Grace Brown)**

### 21 **1. Pilot Size**

22 PG&E is targeting to install chargers at approximately 22 campuses  
23 under the EV Charge Schools Program. The size of the program is intended  
24 both to be responsive to the need identified by the California Legislature in  
25 AB 1082 to increase EV charging infrastructure availability by proposing a  
26 pilot focused on schools,<sup>3</sup> while at the same time keeping scope relatively  
27 small so the learnings can be captured and documented to inform future  
28 transportation electrification programs. In addition, PG&E designed this pilot

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3 Transportation Electrification: EV Charging Infrastructure: School Facilities and Other Educational Institutions, AB 1082, filed October 10, 2017.

1 to be responsive to the Assigned Commissioner’s Ruling (ACR) which  
2 suggested a cap of program expenditures at \$10 million.<sup>4</sup>

## 3 **2. Target Counties**

4 EV Charge Schools intends to target public schools under the  
5 jurisdiction of the Alameda County Office of Education, the Fresno County  
6 Office of Education, and the San Joaquin Office of Education. Together  
7 these counties represent 65 school districts. Public higher education  
8 campuses in these counties are also eligible for the program, though higher  
9 education will be limited to approximately 10 percent of charging sites in the  
10 pilot as the pilot aims to test how educational components geared toward  
11 elementary and high school students can change EV awareness,  
12 perceptions, and adoption within a school community.

13 PG&E intends to focus deployment of EV Charge Schools in only  
14 three counties to lower project costs through more narrow marketing and  
15 outreach, as well as to streamline and improve the effectiveness of  
16 EV curriculum deployment in these counties.

17 Alameda, Fresno, and San Joaquin Counties are considered likely  
18 targets for the program for two primary reasons:

- 19 1) Proportion in DACs: These counties have significantly higher  
20 proportions of DACs compared to most other populous counties in  
21 PG&E’s service territory.
- 22 2) Varying Levels of Existing EV Infrastructure: San Joaquin and Fresno  
23 Counties have low rates of EV adoption and minimal EV charging  
24 infrastructure; in comparison, Alameda County has more EV charging  
25 infrastructure. By deploying EV Charge Schools across counties with  
26 varying levels of existing charging infrastructure, the pilot can assess  
27 how charging infrastructure at schools influences EV adoption in  
28 different types of communities.

29 During implementation, should other regions be identified as areas  
30 where the pilot’s objectives can best be met, PG&E will evaluate whether to  
31 target these areas through EV Charge Schools.

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4 ACR in Rulemaking 13-11-007, January 24, 2018, ACR Providing Guidance to Utilities  
Electing to Submit Applications Pursuant to AB 1082 and AB 1083.

### 3. Site Offering

Under EV Charge Schools, PG&E will install Level 2 EV chargers at a capacity of 7.2 kilowatts (kW) each. Where feasible, PG&E will install dual port chargers. Each school will determine whether it will install a total of four Level 2 charging ports or a total of six Level 2 charging ports.

The chargers installed through EV Charge Schools are intended to support light-duty vehicles which could include the personal vehicles of school employees, parents, students, and other community members, or light-duty school fleet vehicles. Pursuant to AB 1082, the educational institution participating in EV Charge Schools will establish guidelines for when and how the chargers are used.<sup>5</sup>

### 4. Rates and Pricing

EV chargers installed under EV Charge Schools will be separately metered and charged on the appropriate commercial time-of-use (TOU) rates. PG&E plans to leverage the same rate plans and pricing offered through EVCN. Customers participating in the EV Charge Schools pilot will be eligible to enroll in Schedule A-6 or A-10, which are both TOU rate plans offered to existing commercial customers or may enroll in future rates for which they may be eligible. These rates will provide price signals to encourage charging off-peak, resulting in more efficient integration into the utility grid.

PG&E intends to offer each school participating in the EV Charge Schools pilot will have the following two pricing options, which are also offered in EVCN:

- Pass-Through Pricing: In this option, the school will pass the TOU rate directly to drivers. The TOU signal will act as the main mechanism for load management at the site.

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<sup>5</sup> AB 1082, Sec. 2, (c): “A school district, county office of education, private school, or other educational institution choosing to participate in the program shall have the authority to establish guidelines for use of the charging stations installed pursuant to the approved program, which may include use by faculty, students, and parents, before, during, and after school hours at those times that the school facilities or other educational institutions are operated for purposes of providing education or school-related activities, including, but not limited to, parent-teacher conferences, clubs, theater, and athletic events, and by any other persons present for those activities and events.”

- Custom Pricing: In this option, the school creates their own pricing structure, such as free charging or flat-rate charging. Schools that leverage this option will be required to implement a Load Management Plan that was developed under EVCN. Schools will be requested to shift the amount of EV charging at their site on certain occasions to support the grid. Sometimes PG&E will ask schools to increase EV charging at their site, such as times when there is significant generation of renewable energy like solar. Other times, PG&E will ask schools to decrease EV charging at their site, such as times when there is high demand for electricity.

## 5. Ownership

At all sites, PG&E will own, operate and maintain the EV Service Connection and the EV Supply Infrastructure up to the charger. As with sites in DACs participating in EVCN, all schools will have the option to own, operate and maintain the EV charger and associated network (the “Site host ownership with rebate” option) or to have PG&E own, operate, and maintain the EV charger and associated network (the “PG&E ownership with participation payment” option):<sup>6</sup>

Option 1: Site Host Ownership With Rebate: If the school elects to own the charger, they will be responsible for procuring the charger from a list of charging providers qualified by PG&E under EVCN. As described previously in Section A.4., “Leveraged Funding and Partnerships,” utilizing this list of already qualified vendors will reduce overall costs and provide for a more streamlined implementation of EV Charge Schools. As the owner of the charging equipment, the school will be responsible for installing the charger onto the make-ready infrastructure as well as maintaining and operating the charger for a 10-year period, unless the school elects to have the charger removed after an 8-year period pursuant to AB 1082.<sup>7</sup>

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<sup>6</sup> As directed in D.16-12-065, multi-unit dwellings participating in EVCN are also eligible for PG&E ownership.

<sup>7</sup> AB 1082, Sec. 2, (i): “After a school district, county office of education, private school, or other educational institution has participated in the program for eight years, the school district, county office of education, private school, or other educational institution may cease participation in the pilot program and request removal of the charging station by providing 180-day notice to the electrical corporation.”

PG&E will also provide schools who elect to own the charger with a per-charger rebate equivalent to the base cost of a Level 2 charger. This is equivalent to the level of the rebate provided to Multi-Unit Dwellings located in DACs that participate in EVCN. Based on discussion with the California Department of Education, the upfront cost can be a barrier to schools that prevents them from installing EV chargers.<sup>8</sup> To lower this barrier, EV Charge Schools will provide rebates to schools that participate in the pilot program.

Option 2: PG&E Ownership With Participation Payment: If the school chooses for PG&E to own the charger, PG&E will be responsible for procuring the charger, installing the charger onto the make-ready infrastructure as well as maintaining and operating the charger for a 10-year period unless the school elects to have the charger removed after an 8-year period pursuant to AB 1082.<sup>9</sup>

If a school elects for PG&E to own, operate, and maintain the charger and the network, the school will incur a per-charger participation charge equal to the difference between the cost of their selected charger less the base cost of the EV charger as calculated by PG&E. This participation payment is intended to enable schools to choose the qualified EV chargers that meet their needs without burdening PG&E non-participating customers with higher cost EV chargers.

## **6. Site Selection**

### **a. Eligibility**

To ensure that EV Charge Schools is a cost-effective program and the infrastructure installed remains used and useful, program applicants will be screened to determine whether their site is eligible for EV Charge

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<sup>8</sup> ICF International (2014), California Transportation Electrification Assessment – Phase 1: Final Report, [http://www.caletc.com/wpcontent/uploads/2016/08/CalETC TEA Phase 1-FINAL\\_Updated\\_092014.pdf](http://www.caletc.com/wpcontent/uploads/2016/08/CalETC_TEPhase_1-FINAL_Updated_092014.pdf).

<sup>9</sup> AB 1082, Sec. 2, (i).

Schools. Eligibility criteria could include but is not limited to the following:<sup>10</sup>

- School is a PG&E distribution customer; and
  - School has parking spaces available to dedicate to EV-only spots.
- Additional variables evaluated to determine site eligibility could include but are not limited to:
- Available capacity on nearby transformer;
  - Distance between transformer and new service point;
  - Site conditions related to construction feasibility (i.e., trenching surface, EV Supply Equipment (EVSE) mounting surface, condition of facility);
  - Land and property ownership;
  - If leasing, term and conditions of lease;
  - Existing available Americans with Disabilities Act (ADA) accessible parking; and
  - Forecasted utilization of charging infrastructure at the school.

**b. Prioritization of Disadvantaged Communities**

AB 1082 requires that a pilot program give priority to schools located in DACs.<sup>11</sup> Often these communities have highest need for clean transportation options given poor access to transit and poor air quality that cause high rates of asthma and other health concerns across the community. Therefore, facilitating the growth of EV charging infrastructure in schools in DACs is a high priority for the EV Charge Schools program.

To ensure that schools in DACs are prioritized in the program, at least 35 percent of the schools in EV Charge Schools will be located in or primarily serve DACs.

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<sup>10</sup> The criteria listed in this section were based off of the baseline criteria directed in D.16-12-065.

<sup>11</sup> AB 1082, Sec. 2, (h): “An electrical corporation shall prioritize in its proposal school facilities and other educational institutions located in disadvantaged communities.”



1           **c. Selection Process**

2           All eligible schools will be able to apply for EV Charge Schools on  
3           its launch date. PG&E intends to review school applications on a  
4           “first-come, first-served” basis. Once the pilot budget is fully subscribed,  
5           no more schools will be accepted into the program.

6           An exception to the first-come, first-served process is for schools in  
7           DACs. Throughout implementation, PG&E will evaluate the mix of  
8           school sites to determine if EV Charge Schools is on track to meet the  
9           35 percent target. If necessary, schools in DACs will be prioritized to  
10          ensure the 35 percent target is met.

11          During implementation, should an alternate site selection process be  
12          identified that enables PG&E to better meet the objectives of EV Charge  
13          Schools, PG&E will re-evaluate the first-come, first-served selection  
14          process.

15   **C. Procurement, Construction, and Operations (Witness: Benedict Chung)**

16          In this section, PG&E describes the procurement, construction, and  
17          operations of the physical equipment associated with the EV Charge Schools  
18          pilot program.

19   **1. Infrastructure/Equipment Components**

20          For EV Charge Schools, PG&E will leverage the infrastructure  
21          specifications and standards utilized in EVCN. The elements of this  
22          infrastructure include:

- 23          • A utility pole or underground rise in proximity to the new charging station  
24          site in order to provide optimal access and a service drop that feeds the  
25          charging station;
- 26          • A transformer, typically pad-mounted, specified to expected load  
27          downstream at the charger equipment;
- 28          • A dedicated SmartMeter™ and electrical panel to monitor energy usage  
29          at the charging stations, and to facilitate accurate billing and energy  
30          usage reconciliation between PG&E and PG&E’s EV service partners  
31          and/or the customer;
- 32          • 7.2 kW Level 2 EV chargers which include the charging station casing,  
33          user interface components, cables, and connectors, able to serve most

EV models using the SAE J1772 industry standard connectors for alternating current charging; and

- Network operations equipment including all of the hardware and software required to operate the EV charger and to enable communications and transactions among the operators, the EV driver, and PG&E.

Under EV Charge Schools, PG&E will manage all EV Service Connection and Supply Infrastructure in adherence with policies and procedures outlined in existing PG&E Electric Operations procedures.

PG&E plans to continue participating in the Vehicle Grid Integration Working Group. If and when final recommendations regarding Level 2 charging infrastructure are developed, PG&E will assess their applicability to the EV Charge Schools pilot, and, to the extent feasible, will endeavor to install Level 2 charging infrastructure that meets the hardware requirements specified by the VGI Working Group.

## **2. Procurement**

PG&E plans to leverage the results of the EVCN procurement and vendor qualification processes and use the vendors already selected and/or qualified under EVCN. This will streamline the EV Charge Schools pilot so it can be more rapidly and affordably deployed.

The procurement processes used to select PG&E's vendors and to qualify vendors for customer-owned EVSE under EVCN were designed to provide customers with a solution that effectively and cost efficiently meets customer needs while enabling a competitive, innovative marketplace. This process was approved by the California Public Utilities Commission (Commission) and overseen by PG&E's Program Advisory Council (PAC).

PG&E will also leverage the construction partners selected via a competitive procurement process for work performed in EVCN to install the EV Service Connection and EV Supply Infrastructure for this program. Utilizing these existing construction partners will result in more efficient implementation of the EV Charge Schools pilot.

### 3. Site Design

PG&E will design the EV Service Connection and Supply Infrastructure at each site based on electric load, site-specific access, and other technical requirements. As needed, PG&E will work with prospective EV charging site hosts to acquire land use easements to house EV charging stations and the required number of parking spaces for EVs.

Once a site host and EV charging station location are selected, PG&E will design the infrastructure to provide electric service to the location by following PG&E's established procedures. The service connection will be used for the charging infrastructure and will require dedicated meters and electric panels to the charging bank to ensure ease of operations and servicing of the site, while ensuring accurate billing for energy consumed at the charging stations.

As with EVCN, charger equipment and site specifications will address ADA requirements as adopted by California at the time of charger installations.

### 4. Construction

EV Charge Schools will follow the construction processes and standards developed for EVCN. As with EVCN, the construction will be conducted by the PG&E workforce. Pursuant to the requirements of AB 1082.<sup>12</sup> In all cases, construction will be overseen by PG&E.

### 5. Maintenance and Operations

The proposed EV Service Connection and EV Supply Infrastructure will be operated and maintained using established PG&E operations and maintenance (O&M) processes and procedures and in compliance with General Order 165.

At sites where the school facility has elected for PG&E to own the EV charger, PG&E or PG&E's designated service provider will continue to maintain and operate the EV charger and associated network, following the same procedures as those used for EVCN. PG&E will maintain the charging

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<sup>12</sup> AB 1082, Sec. 2, (f): "Charging stations installed pursuant to a pilot program approved by the commission pursuant to this section shall be installed and maintained by the utility workforce, or by workers who are paid the prevailing wage for all program-related work."

equipment for the life of the equipment, or for eight years if the school elects for the equipment to be removed after eight years, pursuant to AB 1082.

As with EVCN, the maintenance and operations work will be conducted by the PG&E workforce.<sup>13</sup>

## **6. Equipment Removal**

As directed by AB 1082, schools who have had EV chargers installed as part of the EV Charge Schools pilot have the option of requesting removal of the EV charging equipment after the chargers have been installed for eight years.<sup>14</sup> The school can submit their request for charger removal to the EV Charge Schools PMO and PG&E will remove the EV charger within 180 days of the request being received. If PG&E owns the EV charging equipment, PG&E will cover the costs of the charger removal. If the school owns the EV charging equipment, the customer will cover the cost of the charger removal. In either instance, PG&E will be responsible for the cost and work to de-energize the EV Service Connection and EV Supply Infrastructure and abandon the conduit in place.

## **7. Program Management Organization**

All program and project management functions will be overseen by the PMO. As described previously, EV Charge Schools will leverage the PMO already in place for the EVCN to streamline the process, providing more clarity to customers and lowering program costs. The EV Charge Schools Program will benefit by adding incremental staff to this organization while building on the existing infrastructure and staff employed as part of the EVCN PMO.

The PMO will ensure that the construction and maintenance of the charging stations and infrastructure is managed in coordination with the educational institution, as required by AB 1082.<sup>15</sup>

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<sup>13</sup> AB 1082, Sec. 2, (f).

<sup>14</sup> AB 1082, Sec. 2, (i).

<sup>15</sup> AB 1082, Sec. 2, (d): "Construction and maintenance of the charging stations and infrastructure shall be managed in coordination with the school district, county office of education, private school, or other educational institution."

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**TABLE 2-2**  
**EV CHARGE SCHOOLS CONSTRUCTION AND PROCUREMENT COSTS**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
1	<b>Charging Site Costs</b>							
2	<u>Capital Costs</u>							
3	Charging Site Service Connection	Benedict Chung	\$273	\$563	\$290	—	—	\$1,126
4	Charging Site EV Supply Infrastructure	Benedict Chung	508	1,049	541	—	—	2,099
5	Charging Site Easements (fees and services)	Benedict Chung	16	33	17	—	—	66
6	Charger & Network Capital Costs	Lila Grace Brown	95	197	101	—	—	393
7	Charging Site Service Connection Capital Replacement	Benedict Chung	2	5	6	7	7	26
8	Charging Site EV Supply Infrastructure Capital Replacement	Benedict Chung	2	5	6	7	7	26
9	Charging Capital Contingency	Benedict Chung	134	278	144	2	2	560
10	Capital Subtotal With Contingency		\$1,030	\$2,129	\$1,106	\$15	\$16	\$4,295
11	<u>Expense Costs</u>							
12	Charger & Network O&M Costs	Lila Grace Brown	\$12	\$37	\$50	\$51	\$52	\$201
13	Program Participation Payment	Lila Grace Brown	—	—	—	—	—	—
14	Charging Site Service Connection Maintenance	Benedict Chung	1	3	4	4	4	15
15	Charging Site EV Supply Infrastructure Maintenance	Benedict Chung	1	3	4	4	4	15
16	Charging Expense Contingency	Benedict Chung	2	6	9	9	9	35
17	Expense Subtotal With Contingency		\$16	\$49	\$66	\$67	\$68	\$267
18	<u>Charging Site Cost Subtotal</u>							
19	Capital Subtotal With Contingency		\$1,030	\$2,129	\$1,106	\$15	\$16	\$4,295
20	Expense Subtotal With Contingency		\$16	\$49	\$66	\$67	\$68	\$267

**TABLE 2-2**  
**EV CHARGE SCHOOLS CONSTRUCTION AND PROCUREMENT COSTS**  
**(THOUSANDS OF NOMINAL DOLLARS)**  
**(CONTINUED)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
21	<b>Other Costs</b>							
22	<u>Capital Costs</u>							
23	Program Management Organization	Benedict Chung	\$93	\$182	\$94	—	—	\$369
24	Capital Subtotal		\$93	\$182	\$94	—	—	\$369
25	<b>Total EV Charge Schools Construction and Procurement Costs</b>							
26	Capital With Contingency		\$1,123	\$2,311	\$1,200	\$15	\$16	\$4,664
27	Expense Costs With Contingency		\$16	\$49	\$66	\$67	\$68	\$267

1 Contingency estimated for the capital and expense costs for charging  
2 sites is 15 percent. When specific sites are selected to install Level 2  
3 EV charging infrastructure under EVCN, a 10 percent contingency is used to  
4 estimate site costs. Given that the specific sites for EV Charge Schools  
5 have not yet been selected and illustrative sites evaluated for the cost  
6 estimates indicated variability in site features that influence costs, PG&E is  
7 proposing a higher contingency of 15 percent for this proposal.

#### 8 **D. Program Marketing and Outreach for Site Host Acquisition**

9 **(Witness: Lila Grace Brown)**

10 This section outlines PG&E actions over the pilot period to outreach and  
11 market the EV Charge Schools pilots to schools that qualify for the program.

##### 12 **1. Objectives**

13 The objective of PG&E's outreach and program marketing as it relates  
14 to this pilot is to ensure schools in the eligible counties are:

- 15 • Aware of the opportunity;
- 16 • Understand what the opportunity entails;
- 17 • Able to assess whether this opportunity is valuable for their campus;
- 18 • Know steps to apply; and
- 19 • Submit an application if they are interested in the opportunity.

##### 20 **2. Targeting Considerations**

21 Target audiences for EV Charge Schools' marketing and outreach  
22 include influencers and decision-makers who can decide whether  
23 EV Charge Schools is right for their campus and, if it is, help to move the  
24 application through the customer acquisition funnel. These audiences will  
25 vary across the different campus types.



**TABLE 2-3  
SUMMARY OF SCHOOL INFLUENCERS AND DECISION-MAKERS**

Line No.	Site Type	Influencers	Decision-Makers
1	Lower education (Elementary, Junior, Middle, K-12, High schools)	County Office of Education School District Maintenance/facilities officers Teachers PTAs	School board
2	Community Colleges, California State Universities, Universities of California	Student groups Faculty and staff Maintenance, facilities, transportation officers Sustainability officers	College leadership

### 3. Marketing Channels

PG&E intends to leverage the following key customer channels and support materials.

Direct Outreach to Schools Through Existing Relationships: PG&E will leverage existing internal resources with relationships with schools in target counties to inform key influencers and decision-makers of the opportunity. PG&E teams with these relationships include Business Energy Solutions representatives, Division Leadership teams, Corporate Relations, PG&E Foundation, and Public Affairs departments.

These PG&E teams have already established strong relationships with many schools in the target counties. They may work directly with the County Offices of Education, school districts, and individual schools to provide information about the program, answer questions, follow-up with more detail as appropriate, and provide application assistance when needed.

E-Mail: PG&E intends to include one email campaign at the launch of the pilot to engage the target audiences on the program, informing influencers and key decision-makers about the opportunity. The email will include details decision-makers need to inform their decision about whether to pursue this opportunity, and may direct interested schools to an online application.

PG&E plans to work with the target County Offices of Education to send an email out to public schools in their Counties to inform them of the launch

1 of the EV Charge Schools pilot. PG&E will also leverage our existing  
2 connections with its public school customers and partners in these areas to  
3 provide information about the opportunity.

4 EV Charge Schools Webpage: PG&E intends to have a dedicated  
5 webpage for EV Charge Schools. This site will include information to help  
6 decision-makers assess whether EV Charge Schools makes sense for their  
7 campus with information that could include customer eligibility criteria,  
8 participation requirements, and frequently asked questions. The webpage  
9 may link to the EV Charge Schools online application so interested  
10 customers can apply directly. The webpage may also include information  
11 that is relevant for schools after the customer acquisition stage; for example,  
12 the website can include educational materials with which members of the  
13 school community can learn more about the chargers after they are  
14 installed.

15 Marketing Collateral: EV Charge Schools will include marketing  
16 collateral that can be used by PG&E Business Energy Solutions  
17 representatives and other internal resources engaging with the schools  
18 about the opportunity. The collateral could also be sent directly to schools  
19 or distributed by external partners to generate awareness of the program  
20 and direct schools to the EV Charge Schools webpage for more information  
21 and to apply to enroll. These materials may include, but are not limited to,  
22 brochures, program guides, and other internal selling tools.

#### 23 **4. Outreach in Community Choice Aggregator Territory**

24 Community Choice Aggregators (CCA) are key partners in reaching site  
25 hosts. The shared customer relationship between PG&E and the various  
26 CCAs makes collaboration and coordination even more important to  
27 enhancing deployment efforts within these communities. In addition to  
28 seeing CCAs as a strong partner, PG&E has and will continue to work  
29 closely with CCAs in conducting program outreach. These efforts will  
30 maintain compliance regarding marketing and education and follow all  
31 existing guidelines for direct customer outreach in CCA areas. PG&E has  
32 also invited any interested CCA to participate in the ongoing quarterly PAC  
33 meetings to formally provide comment and feedback on the direction of  
34 program implementation.

## **E. Ongoing Education at Schools (Witness: Lila Grace Brown)**

This section outlines the education-related activities proposed for EV Charge Schools after the EV chargers have been installed.

### **1. Rationale**

Two of the objectives of the EV Charge Schools pilot listed above in Section A.1, “Pilot Objectives” are to:

- Spur EV adoption more broadly by increasing awareness of EVs; and
- Pilot educational programs to increase EV education, particularly among young future drivers.

To meet these objectives, EV Charge Schools will include educational elements that aim to:

- 1) Educate future drivers and student drivers on EVs to accelerate future adoption;
- 2) Leverage education of youth as a conduit for broader EV awareness and adoption; and
- 3) Encourage EV adoption and awareness to all other school community members.

Elementary-aged students’ perceptions can be molded by what they learn in school, which in turn can influence their future behaviors. Therefore, EV Charge Schools will include educational components intended to increase awareness of the availability of EV charging on campus, to encourage teachers, staff, and other members of the community as deemed by the school to use the charges, and to provide information related to EVs and clean transportation that may ultimately lead to increased EV adoption.

### **2. On-Campus Signage**

PG&E plans to include signage installed near the EV charging stations on campuses. The signage may provide information about the EV charger: what it is, how to use it, and how driving an EV can benefit the environment.

PG&E will work with the school to ensure signage is located in a place that does not interfere with traffic, walkway, parking, or other school operations.

### 3. Community Events

PG&E intends to facilitate community-scale events at schools participating in EV Charge Schools, working in conjunction with the participating school to organize an event that brings together the campus community to raise awareness of the EV chargers installed as part of the pilot.

Depending on the size of the community and the interest of the school, the event may include the following:

- PG&E representatives with a booth to provide information about the EV chargers installed on campus, as well as more general information about EVs including how they work, rebates and incentives, ways to charge, EV charging rates, etc.;
- Student showcases of projects related to EVs and the EV chargers specifically, or sustainability and science-related topics more broadly;
- Booths from other local groups working on sustainability and/or transit related issues; and
- EV car manufacturers offering test drives of EVs to encourage future EV ownership while educating customers on the benefits of EV ownership.

PG&E, working with the school, plans to organize the event. PG&E intends to identify and reach out to community groups to participate at the event and to coordinate with car manufacturers if vehicle test drives are appropriate for that event. On the day-of, PG&E will facilitate the event set-up and clean-up. PG&E will provide signage and food at the event as necessary.

Paired with the installation of chargers on campus, these educational events can encourage members of the school community, including students, teachers, and staff, to consider driving an EV to school or work.

### 4. EV Curricula for the Classroom

In addition to community events, EV Charge Schools will pilot educational curricula to increase EV awareness and education. PG&E proposes to design and implement a program that educates students about EVs.

1 Today, PG&E administers the Energenius Program which provides  
2 materials for educators to bring energy- and environment-related topics into  
3 their classrooms to teach students across a wide range of ages. The  
4 Energenius Program includes a “Transportation, Energy, and the  
5 Environment” program for students in grades six and above which includes  
6 teacher lesson plans and student materials. PG&E will leverage this  
7 existing material in the development of EV curricula for EV Charge Schools.

8 For EV Charge Schools, PG&E intends to:

- 9 • Design curriculum that teaches about transportation as it relates to  
10 energy and the environment, with a focus on EVs;
- 11 • Lead workshops for the appropriate teachers in participating schools so  
12 they become familiar with the content and can teach it themselves;
- 13 • Provide materials necessary for teachers to take the learnings back to  
14 the classroom and lead classes on it; and
- 15 • Evaluate program impact through teacher surveys.

16 During program development, should other means of designing and  
17 implementing an EV-related curriculum prove better able to meet the  
18 objectives of EV Charge Schools, PG&E will consider including them.  
19 PG&E will encourage all schools participating in EV Charge Schools to  
20 participate in the EV curricula, though it is not required for schools  
21 participating in the pilot.

## 22 **5. Summary of Marketing Outreach and Education Costs**

23 The table below provides a summary of marketing outreach and  
24 education costs described in this chapter. All costs are incremental to  
25 existing approved transportation electrification programs and costs  
26 underlying the 2017 GRC adopted revenue requirements.

**TABLE 2-4**  
**EV CHARGE SCHOOLS MARKETING, OUTREACH AND EDUCATION COSTS**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
1	<u>Expense Costs</u>							
2	Marketing and Outreach	Lila Grace Brown	\$199	\$121	\$61	-	-	\$381
3	Education	Lila Grace Brown	195	185	72	-	-	452
4	Expense Subtotal		\$394	\$306	\$133	-	-	\$833
5	<u>Marketing, Outreach and Education Subtotal</u>							
6	Capital Subtotal		-	-	-	-	-	-
7	Expense Subtotal		\$394	\$306	\$133	-	-	\$833

1 **F. Pilot Benefits (Witness: Lila Grace Brown)**

2 This chapter outlines the benefits of the proposed pilot and how the  
3 proposed pilot aligns with ratepayer interest.

4 **1. Greenhouse Gas (GHG), Air Quality, and Other Benefits**

5 EV Charge Schools is designed to create both direct and indirect  
6 benefits:

7 GHG and Air Quality Benefits: EV Charge Schools is designed to  
8 increase adoption of EVs by increasing availability of charging stations and  
9 increasing awareness and understanding of EVs through community events  
10 and EV curricula. All Californians benefit as EVs displace gasoline-powered  
11 vehicles, lowering GHG emissions, improving air quality, and reducing  
12 dependence on imported fossil fuels.

13 Educational Benefits: EV Charge Schools benefits schools by funding  
14 educational programs that increase student awareness and understanding  
15 of the transportation system and environmental issues that impact their  
16 daily lives.

17 Benefits to Participating Schools: EV Charge Schools directly benefits  
18 participating schools as it enables them to install EV chargers at lower cost.  
19 With EV chargers, students, teachers, staff, and others who work and learn  
20 on the campus can more easily choose to drive an EV to campus.

21 **2. Ratepayer Interest**

22 Public Utility Code (Pub. Util. Code) §§ 740.8(a) and 740.8(b) define  
23 ratepayer interest as the following:

24 *§ 740.8. Direct benefits that are specific to ratepayers, consistent with*  
25 *both of the following:*

- 26 1) *Safer, more reliable, or less costly gas or electrical service,*  
27 *consistent with Section 451, including electrical service that is safer,*  
28 *more reliable, or less costly due to either improved use of the*  
29 *electric system or improved integration of renewable energy*  
30 *generation.*
- 31 2) *Any of the following:*
- 32 • *Improvement in the energy efficiency of travel.*
  - 33 • *Reduction of health and environmental impacts from air*  
34 *pollution.*
  - 35 • *Reduction of greenhouse gas emissions related to electricity*  
36 *and natural gas production and use.*
  - 37 • *Increased use of alternative fuels.*

- *Creating high-quality jobs or other economic benefits, including in disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.*

PG&E's EV Charge Schools pilot is in the interest of ratepayers as defined in Pub. Util. Code § 740.8. Pursuant to Section 740,8(a), the program will provide:

- Safer service as all components of the program with either use, or promote the use of licensed electricians with EV infrastructure training certification for installation, thereby lowering the risk of vehicles being charged with equipment installed using unsafe electrical practices; and
- Less costly and more reliable electrical service resulting from encouraging the use of TOU rates as a foundation for load management which will improve the integration of renewable generation and shift load to hours of the day when there is spare capacity on the grid.

Further, EV Charge Schools promotes accelerated adoption of EVs, which increases the use of an alternative fuel as defined by Pub. Util. Code § 740.8(b).

## **G. Data and Reporting of Performance Accountability Metrics**

**(Witness: Lila Grace Brown)**

This section outlines the process PG&E intends to use to collect and report data related to performance of the EV Charge Schools pilot.

### **1. Data Collection**

The participating school will be the customer of record, and, in partnership with the EVSP, will be required to provide information to PG&E as appropriate regarding the operations of the charging equipment at the customer site to assist in the preparation of the monitoring and evaluation report consistent with data, reporting, and confidentiality requirements described in the approved EVCN Program.

### **2. Performance Accountability Metrics**

PG&E will issue an annual report to the Commission and the PAC on data collection and monitoring for EV Charge Schools which will, where feasible, include the metrics shown in Table 2-5. Where applicable, metrics will be reported by school segment, including DACs.



**TABLE 2-5  
EV CHARGE SCHOOL METRICS**

Line No.	Category	Metric
1	Deployment	Site host enrollment (# of applications and # of sites installed) School description EVSEs installed (including power rating, make and model) Deployment time Installation cost (total and average) Deployment within or adjacent to DACs Supplier diversity and workforce targets
2	Operational	Utilization rate by site, by type of charger Applicable TOU rate kW profile kWh usage by price Load management approaches, where applicable Other usage data: plugged in time, charging duration, charging power level Charging load profiles (aggregate and by charger) Customer experience and satisfaction
3	Descriptive	Key barriers to deployment of EV charging infrastructure at schools and the pilot's approaches to overcome these barriers Outreach efforts Educational efforts Insights on effect of the program on EV awareness and perceptions in participating schools

## **H. Conclusion (Witness: Lila Grace Brown)**

The primary objectives of PG&E's EV Charge Schools pilot are to increase access to EV charging infrastructure on school campuses, improve the availability of chargers in communities where EV adoption and EV charger availability are relatively low, and pilot educational programs to increase EV adoption. The program elements described in this chapter reflect a sensible forecast of scope, schedule, and costs based on the guidance from the ACR as well as AB 1082.

EV charging installations will only occur after the program eligibility criteria are met to ensure that funds are well-spent on viable projects that meet the program objectives. PG&E requests approval of the full costs summarized in

1 Table 2-1 above and resulting revenue requirements. PG&E will install  
2 additional charging infrastructure beyond targeted deployment to the extent  
3 approved funding remains available. If demand for EV Charge Schools is less  
4 than the estimated costs and resulting revenue requirements during the  
5 approximately 2-year period of the pilot, PG&E may file a Tier 1 Advice Letter to  
6 extend the program deployment length to utilize the remaining program funds.

**PACIFIC GAS AND ELECTRIC COMPANY**

**CHAPTER 2**

**ATTACHMENT 1**

**ASSEMBLY BILL 1082 AND ACR COMPLIANCE TABLE**

1                   **PACIFIC GAS AND ELECTRIC COMPANY**  
2                               **CHAPTER 2**  
3                               **ATTACHMENT 1**  
4                   **ASSEMBLY BILL 1082 AND ACR COMPLIANCE TABLE**

5           The below table references the text in this application that fulfills  
6           requirements articulated in Assembly Bill (AB) 1082,<sup>1</sup> and in the guidance  
7           provided in the Assigned Commissioner’s Ruling (ACR).<sup>2</sup> Pursuant to the  
8           legislation and the ACR, in development of this proposal, Pacific Gas and  
9           Electric Company (PG&E) consulted with the California Department of  
10          Education, as well as other educational organizations, to understand charging  
11          needs at school facilities. Additionally, pursuant to the guidance in the ACR,  
12          PG&E reviewed the proposal for Electric Vehicle (EV) Charge Schools with  
13          PG&E’s Program Advisory Council.

- 
- 1    Transportation electrification: EV charging infrastructure: school facilities and other  
educational institutions, AB 1082, filed October 10, 2017.
- 2    ACR in Rulemaking 13-11-007, January 24, 2018, *Assigned Commissioner’s Ruling  
Providing Guidance to Utilities Electing to Submit Applications Pursuant to Assembly  
Bills 1082 and 1083.*

**TABLE 2-1  
AB 1082 AND ACR COMPLIANCE TABLE**

Line No.	Category	Requirement	Reference
1	AB 1082	Have cost recovery mechanisms that allow for cost recovery up to a California Public Utilities Commission (CPUC)-defined limit.	Chapter 4, Section D
		Minimize costs and maximize benefits.	Chapter 1, Section E
		Do not unfairly compete with non-utility enterprises.	Chapter 1, Section G
		Include performance accountability measures.	Chapter 2, Section G
		Are in the interest of ratepayers.	Chapter 2, Section F.2
		Use workers paid the prevailing wage or employed by the utility to install charging stations.	Chapter 2, Section C.4
		Require the site hosts to participate in a time-variant electric rate for charging stations.	Chapter 2, Section B.4
		Prioritize sites located in disadvantaged communities.	Chapter 2, Section B.6.b
2	Portfolio Fit	Describe any current transportation electrification projects at any schools; describe proposal alignment with broader transportation electrification portfolio.	Chapter 2, Section A.3
		Explain the expected greenhouse gas and air quality benefits of the pilot.	Chapter 2, Section F.1
		Explain how the pilot leverages the lessons learned from ongoing transportation electrification work.	Chapter 2, Section A.4
3	Project Summary	Include the number of sites and charging ports.	Chapter 2, Section A.2
		Include the capital costs and expenses associated with the pilot.	Chapter 2, Section A.5
		Explain the process to choose vendors for equipment, construction, and services.	Chapter 2, Section C.2
		Explain the process the utilities will use to select appropriate pilot sites.	Chapter 2, Section B.6
		Include the type and power level of charging equipment and the vehicle type (e.g., personal vehicle, fleet vehicle, school bus) that will use the charging equipment.	Chapter 2, Section B.3
4	Charging Equipment	Include all the infrastructure necessary for charging, including the make-ready infrastructure, and identify who will install, own, and maintain the infrastructure.	Chapter 2, Section B
		Explain how PG&E has considered the recommendation from the CPUC's Vehicle Grid Integration Working Group.	Chapter 2, Section C.1

**TABLE 2-1  
AB 1082 AND ACR COMPLIANCE TABLE  
(CONTINUED)**

Line No.	Category	Requirement	Reference
5	Cost Recovery	State the annual and cumulative revenue requirement associated with the proposal.	Chapter 4, Section C.1
6	Pilot Outreach	Describe plan to engage stakeholders and identify potential sites for charging infrastructure.	Chapter 2, Section D
7	Data Collection and Evaluation	Propose a plan for data gathering, reporting, and evaluation.	Chapter 2, Section G.1
8	Rate and Load Impacts	Describe additional requirements necessary to manage charging load.	Chapter 2, Section B.4
9	Leveraged Funding and Partnerships	Explain plan to leverage funding to support the pilot and identify project partners or state/local agencies that will provide guidance and expertise during the implementation.	Chapter 2, Section A.4
10	Safety	Include a plan to ensure worker, customer, and driver safety based on draft safety checklist developed for the Senate Bill 350 priority review TE projects, and contain any additional safety requirements specific to the proposed pilots; work with other utilities to develop a safety plan.	Chapter 2, Section C.8

**PACIFIC GAS AND ELECTRIC COMPANY**

**CHAPTER 3**

**EV CHARGE PARKS**

PACIFIC GAS AND ELECTRIC COMPANY  
CHAPTER 3  
EV CHARGE PARKS

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EV CHARGE PARKS

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**PACIFIC GAS AND ELECTRIC COMPANY**  
**CHAPTER 3**  
**EV CHARGE PARKS**

**A. Introduction and Pilot Summary (Witness: Lila Grace Brown)**

This chapter describes in detail Pacific Gas and Electric Company's (PG&E) proposed EV Charge Parks pilot to provide electric vehicle (EV) charging infrastructure to California's state parks and beaches pursuant to Assembly Bill (AB) 1083.

**1. Pilot Objectives**

The objectives of the EV Charge Parks pilot are to:

- Support the mission of the California Department of Parks and Recreation (State Parks):  
To provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation;<sup>1</sup>
- Facilitate deployment of EV charging infrastructure that enables state park visitors to charge while they spend time at the park;
- Enable electrification of the State Parks' fleet with a focus on light-duty vehicles; and
- Encourage EV adoption more broadly by installing EV charging infrastructure in remote areas where minimal charging infrastructure exists today, and publicizing the availability of charging in remote locations.

**2. Pilot Overview**

EV Charge Parks was designed in coordination with the State Parks to meet the needs of the State Parks and to address the specific challenges unique to these sites. As the California Legislature signifies in AB 1083, there is a need for charging infrastructure in these locations. Working with the State Parks, PG&E has designed a program intended to facilitate EV

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<sup>1</sup> California Department of Parks and Recreation, "Our Mission," [https://www.parks.ca.gov/?page\\_id=91](https://www.parks.ca.gov/?page_id=91). Accessed July 23, 2018.

1 charging in state parks, leveraging PG&E's existing resources and expertise  
2 developed under the EV Charge Network (EVCN) Program.

3 The EV Charge Parks pilot includes two distinct elements:

- 4 • EV charging for State Park fleet and employee vehicles and; and
- 5 • EV charging (both Level 2 and Direct Current Fast Charging (DCFC) DC  
6 Fast Charging) for state park visitors.

7 At some locations with high need for charging but insufficient electric  
8 infrastructure, EV Charge Parks will provide an off-grid charging solution  
9 (described in more detail below).

10 **a. State Park Fleet and Employee Vehicle Charging**

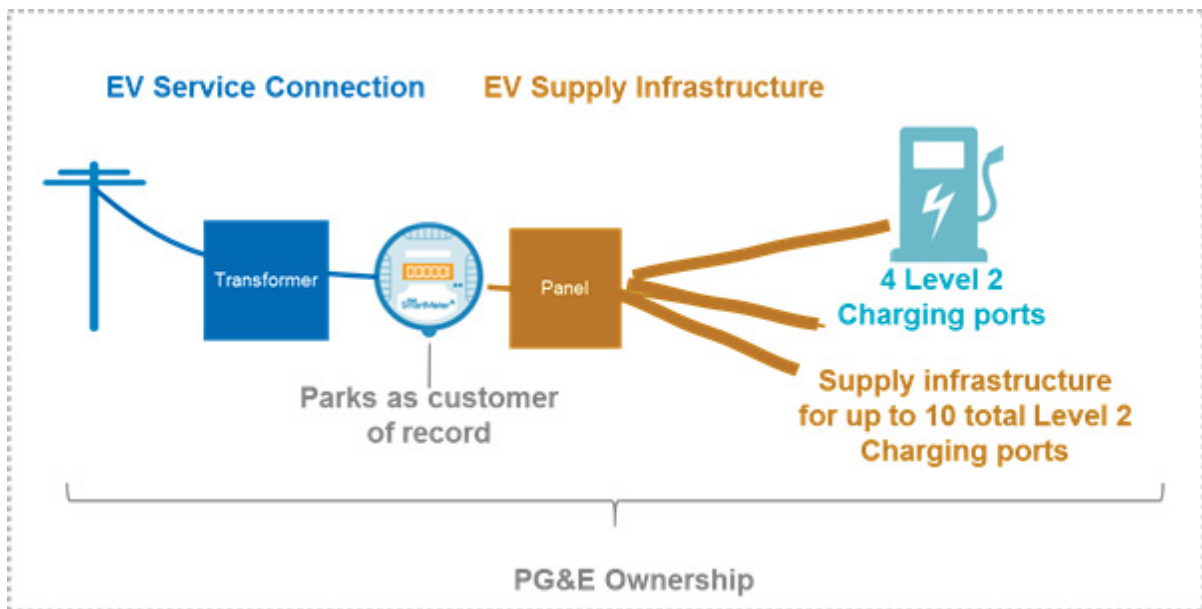
11 For State Park fleet and employee vehicles, PG&E will install four  
12 Level 2 charging ports and lay conduit and build additional electric  
13 capacity to facilitate easier installation for up to ten total Level 2  
14 charging ports in the future. This will enable State Parks to charge the  
15 EVs it has in its fleet today, and install future chargers as the number of  
16 electric fleet vehicles increases. The chargers installed under EV  
17 Charge Parks will be separately metered and charged on a time-of-use  
18 (TOU) rate with the State Parks as the customer of record.

19 When fleet vehicles are not charging, subject to State Parks  
20 approval, employees could use these chargers for their own vehicles.

21 For cost estimation purposes, PG&E assumed installing State Parks  
22 fleet and employing charging infrastructure at five sites under EV  
23 Charge Parks.

24 The proposed site configurations for State Parks' fleet and  
25 employee vehicle charging within EV Charge Parks is depicted in  
26 Figure 3-1 below.

**FIGURE 3-1  
PROPOSED PARK FLEET AND EMPLOYEE VEHICLE CHARGING SITE CONFIGURATION**



#### **b. Visitor Vehicle Charging**

For State Parks visitors, EV Charge Parks will configure sites based on the needs of State Parks and the constraints of the particular site, with a combination of Level 2 chargers and DCFC. For purposes of estimating pilot costs, PG&E has assumed two standard site designs:

1. Level 2 only: The first site design includes four Level 2 charging ports. For cost estimation purposes, PG&E assumed installing EV charging infrastructure under this configuration at three State Parks locations.
2. Level 2 and DCFC: The second site design includes two Level 2 charging ports and one DCFC. For cost estimation purposes, PG&E assumed installing EV charging infrastructure under this configuration at two State Parks.

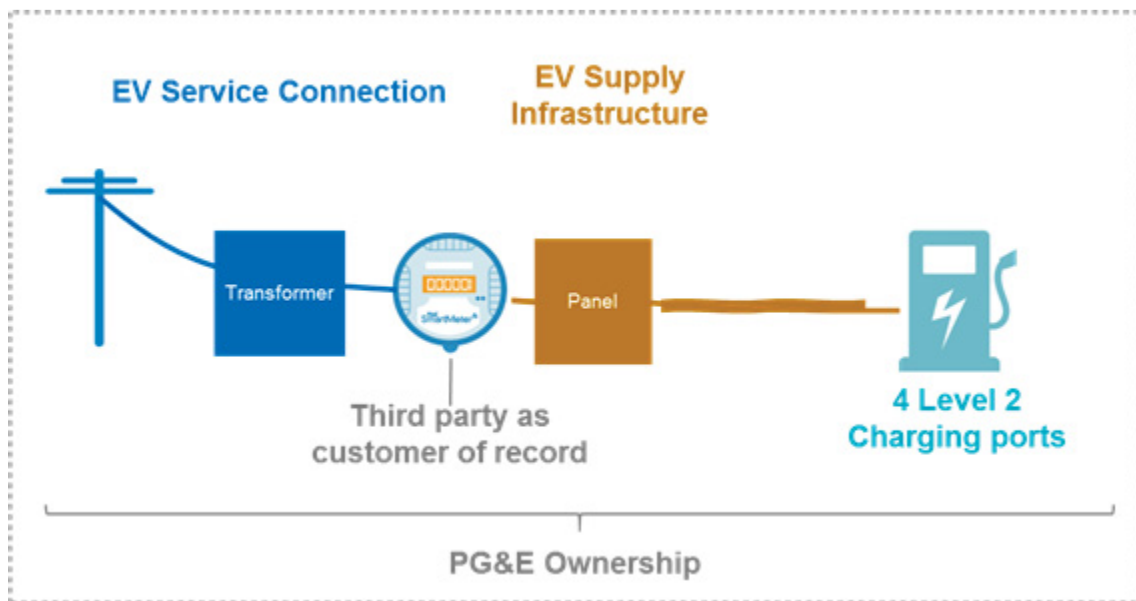
EV Charge Parks will vary these standard designs to the extent possible to meet the needs of State Parks.

In sites with chargers installed for State Parks visitors, the EV chargers will be separately metered on a TOU rate. PG&E will contract with a third party to maintain and operate the chargers. This third party will be the utility's customer of record responsible for paying the cost of the electricity used by the charger. The third party can collect revenue

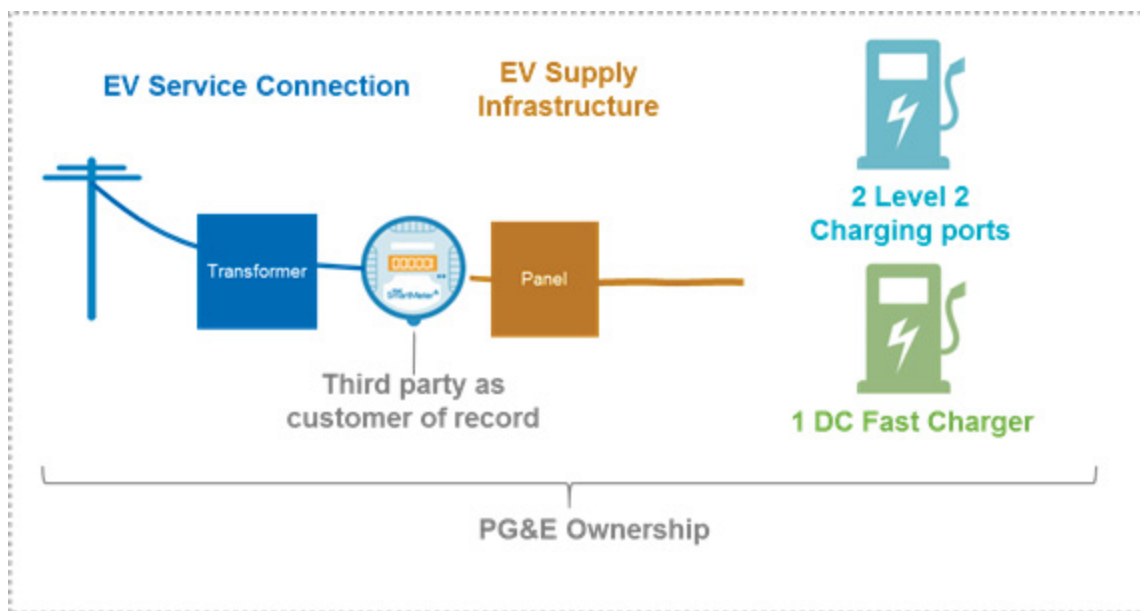
from the chargers by passing through the cost of the electricity to users with an additional adder. This adder will be developed in coordination with PG&E in collaboration with State Parks.

The two proposed site configurations for State Parks visitor charging within EV Charge Parks are depicted in Figure 3-2 and Figure 3-3 below.

**FIGURE 3-2  
PROPOSED STATE PARKS VISITOR L2 CHARGING SITE CONFIGURATION**



**FIGURE 3-3  
PROPOSED STATE PARKS VISITOR DCFC AND L2 CHARGING SITE CONFIGURATION**



**c. Off-Grid Charging**

In PG&E's development of this proposal, PG&E and State Parks identified sites with need for EV charging but insufficient electric capacity to support chargers. In some of these sites, upgrading the existing electric infrastructure would be cost prohibitive given the distance from electrical infrastructure with sufficient capacity to support charging. In these instances, EV Charge Parks will provide an off-grid charging solution to enable EV charging without requiring electric infrastructure upgrades. This off-grid solution will provide either Level 2 charging or DCFC capabilities depending on the needs of the site. For purposes of cost estimation, PG&E assumed providing off-grid charging infrastructure at approximately five sites.

**d. Ownership**

PG&E will build, own, operate and maintain the EV Service Connection, the EV Supply Infrastructure, and the charger and associated network for all sites to ensure that State Parks incurs no

costs or liability for the duration of the pilot, as specified in AB 1083.<sup>2</sup> In sites where EV Charge Parks provides off-grid solutions, PG&E will procure, own, and operate the assets for the life of the assets. In both cases, State Parks will incur no cost or liability for the duration of the pilot.

**e. Marketing, Education and Outreach (ME&O)**

To facilitate use of the charging equipment by visitors and raise awareness about the environmental benefits of EVs, PG&E intends to install educational signage near the chargers. Content and visuals will be approved by State Parks before signage is installed.

Finally, the EV Charge Parks pilot will include a wider media campaign publicizing the availability of EV charging at some state parks. The objectives of this media campaign are: (1) to raise awareness among potential visitors about the ability to charge at state parks, encouraging them to drive EVs on their future trips to state parks; and (2) to increase awareness more broadly about the availability of EV charging in many locations across the state, even those that may seem remote, to reduce range anxiety and so facilitate EV adoption.

**3. Fit With PG&E's Existing Transportation Electrification Portfolio**

PG&E currently has three transportation electrification pilots and programs that could install EV charging infrastructure at state parks:

- EV Charge Network (EVCN): PG&E's EVCN Program aims to install up to 7,500 EV charging ports at workplaces and multiunit dwellings, with a goal of 15 percent of installations in disadvantaged communities from 2018 through 2020. Some State Parks' offices and other sites may qualify as workplaces that could apply for EVCN.
- Fleet Ready: PG&E's Fleet Ready program aims to complete 700 make-ready installations to support up to 8,800 charging ports for

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<sup>2</sup> AB 1083, Sec. 2, (f): "Except for costs incurred in determining park and beach suitability pursuant to subdivision (a) and potential liability under the Government Claims Act (Division 3.6 (commencing with Section 810) of Title 1 of the Government Code), the Department of Parks and Recreation shall not be required to incur any costs or liability related to the installation, use, or maintenance of the charging stations for the pilot program's duration."



1 medium and heavy-duty fleets by 2024, with at least 15 percent of the  
2 infrastructure budget serving transit agencies and at least 25 percent of  
3 the budget for installations in disadvantaged communities (DAC). Under  
4 Fleet Ready, Parks could apply for charging infrastructure to support  
5 electrification of their medium- and heavy-duty fleet vehicles.

- 6 • Fast Charge: PG&E's Fast Charge program aims to install over  
7 50 plazas for publicly accessible DCFC in corridor and urban sites as  
8 well as provide incentives for locations in DACs.

9 Per the direction of the California Legislature under AB 1083, PG&E  
10 worked with State Parks to design a pilot for EV charging infrastructure  
11 specifically for State Parks. The resulting proposed EV Charge Parks pilot  
12 therefore meets charging needs distinct from those already met by existing  
13 transportation electrification programs:

- 14 1. PG&E Ownership: In both the Fleet Ready and Fast Charge programs,  
15 PG&E will install the EV Supply Infrastructure and EV Service  
16 Connection, and the site host owns the charger. In EVCN, site hosts  
17 have the option of allowing PG&E to own the charging infrastructure  
18 only when the site is located in a DAC. Under EV Charge Parks, PG&E  
19 proposes to own the EV charging equipment to facilitate EV charging  
20 installation at all sites.
- 21 2. Per-Site Costs: Cost estimates were developed uniquely for the  
22 proposed EV Charge Parks pilot. The cost estimates in this proposal  
23 were developed by analyzing illustrative state parks in PG&E territory,  
24 estimating costs of site configurations designed specifically for state  
25 parks, and factoring for features unique to state parks, such as  
26 enhanced environmental screening prior to site selection.
- 27 3. Additional Education Components: As state parks are highly visible  
28 locations where visitors often come to spend longer periods of time than  
29 a typical parking lot, spending more time observing and exploring their  
30 surroundings, EV Charge Parks includes educational components. This  
31 could include events to inform the public about the availability of  
32 chargers and the benefits of EVs, as well as educational signage  
33 installed near the charging equipment.

1 For these reasons (ownership model, per-site costs, additional  
2 education components), EV Charge Parks meets the specific needs of State  
3 Parks and state park visitors, facilitating more rapid deployment of EV  
4 charging at these locations than would occur under existing transportation  
5 electrification programs.

#### 6 **4. Leveraged Funding and Partnerships**

7 The implementation of EVCN creates a number of opportunities for EV  
8 Charge Parks to leverage existing program structure. This includes the  
9 following:

- 10 • Program Management Organization (PMO):
  - 11 – PG&E has developed a robust PMO under EVCN. The EV Charge  
12 Parks program will benefit by adding incremental staff to this  
13 organization while benefiting from the existing structure and staff  
14 employed as part of EVCN.
- 15 • EV Charger Vendor Qualification and Procurement Process:
  - 16 – PG&E has established both a qualification process and procurement  
17 process for Level 2 EV chargers and the associated charger  
18 network as part of EVCN. PG&E intends to use Level 2 vendors  
19 already qualified and approved under EVCN in EV Charge Parks.  
20 Utilizing this list will reduce overall costs and provide for a more  
21 streamlined implementation of EV Charge Parks.
- 22 • Engineering and Construction Contractors:
  - 23 – PG&E implemented a similar procurement process to select  
24 engineering and construction contractors who design and install EV  
25 chargers under EVCN. PG&E intends to leverage these contractors  
26 for EV Charge Parks.
- 27 • Construction Specifications and Standards:
  - 28 – PG&E has established construction specifications and standards  
29 throughout the roll-out of EVCN. For example, PG&E has designed  
30 a pre-cast concrete base used in the installation of EV chargers for  
31 the EVCN. This is one example of standards developed in the  
32 EVCN that can also be used in EV Charge Parks.

33 Additionally, PG&E can build on the long-standing relationship between  
34 the PG&E Foundation and the California State Parks Foundation to

1 implement EV Charge Parks. PG&E intends to collaborate with both the  
2 California Department of Parks and Recreation and the California State  
3 Parks Foundation for guidance on how EV Charge Parks can further the  
4 mission of the State Parks. As well, PG&E intends to consult with the  
5 California State Parks Foundation on impactful and engaging messaging to  
6 educate state park visitors about the benefits of the EV chargers.

7 EV Charge Parks includes a broader media campaign that publicizes  
8 the availability of chargers at State Parks which will leverage existing EV-  
9 related content. PG&E intend to coordinate this campaign with other EV-  
10 focused media campaigns as appropriate. Where possible, PG&E will build  
11 on existing messaging and communications around EVs to reduce costs of  
12 the campaign and to ensure EV-related messaging is coherent to the public.  
13 For example, in development of this proposal, PG&E consulted with Veloz, a  
14 non-profit organization with the mission to, “inspire, educate, and empower  
15 Californians to drive electric,” to explore how Veloz’s EV-focused outreach  
16 could be leveraged for outreach related to EV Charge Parks.<sup>3</sup>

17 PG&E will endeavor to coordinate with other utilities submitting filings for  
18 AB 1083 as appropriate, to leverage the messaging and design of this  
19 media campaign in order to keep costs low and strengthen the messaging  
20 across the various utility programs.

## 21 **5. Pilot Cost Summary (Witnesses: Lila Grace Brown and Benedict** 22 **Chung)**

23 PG&E requests \$4.21 million in capital, and \$1.33 million in expense, for  
24 a total cost of \$5.54 million, for the approximately 2-year deployment of the  
25 EV Charge Parks pilot and the ongoing costs necessary to support and  
26 maintain the program investments placed in service through 2023 (or the  
27 next General Rate Case (GRC) following the 2020 GRC). All costs  
28 requested in this chapter are incremental to existing approved transportation  
29 electrification programs and costs underlying the 2017 GRC adopted  
30 revenue requirements.

31 Costs are outlined in Table 3-1.

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<sup>3</sup> Veloz, “About Us,” <http://www.veloz.org/about/#about>. Accessed July 23, 2018.

**TABLE 3-1**  
**EV CHARGE PARKS DETAILED COST SUMMARY**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
1	<b>Charging Site Costs</b>							
2	<u>Capital Costs</u>							
3	Charging Site Service Connection	Benedict Chung	\$178	\$366	\$189	–	–	\$733
4	Charging Site EV Supply Infrastructure	Benedict Chung	295	609	314	–	–	1,218
5	Charging Site Easements (fees and services)	Benedict Chung	11	22	12	–	–	45
6	Charger & Network Capital	Lila Grace Brown	248	405	209	–	–	862
7	Charging Site Service Connection Capital Replacement	Benedict Chung	1	2	3	3	3	12
8	Charging Site EV Supply Infrastructure Capital Replacement	Benedict Chung	1	2	3	3	3	12
9	Charging Capital Contingency	Benedict Chung	257	493	255	2	2	1,009
10	Capital Subtotal with Contingency		\$989	\$1,900	\$984	\$8	\$8	\$3,890
11	<b>Expense Costs</b>							
12	Charger & Network O&M costs	Lila Grace Brown	17	51	70	71	72	281
13	Charging Site Service Connection Maintenance	Benedict Chung	–	1	2	2	2	7
14	Charging Site EV Supply Infrastructure Maintenance	Benedict Chung	–	1	2	2	2	7
15	Charging Expense Contingency	Benedict Chung	6	19	26	26	26	103
16	<u>Expense Subtotal with Contingency</u>		\$24	\$73	\$99	\$100	\$102	\$398
17	<b>Charging Site Cost Subtotal</b>							
18	<u>Capital Subtotal with Contingency</u>		989	1,900	984	8	8	\$3,890
19	<u>Expense Subtotal with Contingency</u>		24	73	99	100	102	\$398
20	<b>Other Costs</b>							
21	<u>Capital Costs</u>							

**TABLE 3-1**  
**EV CHARGE PARKS DETAILED COST SUMMARY**  
**(THOUSANDS OF NOMINAL DOLLARS)**  
**(CONTINUED)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
22	Program Management Organization	Benedict Chung	61	166	89	-	-	317
23	Capital Subtotal		61	166	89	-	-	\$317
24	<u>Expense Costs</u>							
25	ME&O	Lila Grace Brown	16	609	14	-	-	639
26	Site Selection	Lila Grace Brown	196	64	33	-	-	293
27	Expense Subtotal		212	673	47	-	-	\$932
28	<b>Other Costs Subtotal</b>							
29	Capital Subtotal		61	166	89	-	-	\$317
30	<u>Expense Subtotal</u>		\$212	\$673	\$47	-	-	\$932
31	<b>EV Charge Parks Costs Subtotal</b>							
32	<u>Capital Subtotal with contingency</u>		1,051	2,067	1,073	8	8	\$4,207
33	<u>Expense Subtotal with contingency</u>		236	746	146	100	102	\$1,330
34	<u>EV Charge Parks Subtotal with contingency</u>		1,287	2,813	1,219	108	110	\$5,537

For cost estimation purposes, PG&E assumed 15 installations (broken down in detail in Section B.1., “Pilot Size”). However, the costs for the EV Charge Parks pilot are uncertain, due to unique features of state parks. State parks have highly variable layouts and availability of existing infrastructure that will influence construction costs. Actual costs and specific sites will vary from those used to develop these cost estimates, and PG&E will not fund EV Charge Parks during the pilot timeframe, unless funds remain available to fund the infrastructure under the overall cost cap. Conversely, if demand for EV Charge Parks is less than the estimated costs and resulting revenue requirements during the approximately 2-year period of the pilot, PG&E may file a Tier 1 Advice Letter (AL) to extend the program deployment length to utilize the remaining program funds.

## **B. Pilot Design (Witness: Lila Grace Brown)**

This section outlines the design of the EV Charge Parks pilot. It details the size and structure of the proposed pilot, the proposed ownership model, and the proposed rates and pricing structures.

### **1. Pilot Size**

Under EV Charge Parks, PG&E is targeting to install charging or provide off-grid charging at 15 locations. Cost estimates were developed based on the following breakdown:

- 5 sites with Level 2 charging for fleet use;
- 3 sites with Level 2-only charging for visitor use;
- 2 sites with both Level 2 and DCFC for visitor use;
- 4 sites with off-grid Level 2 charging for visitor use; and
- 1 site with off-grid DCFC for visitor use.

Actual number of sites of each type may vary to accommodate State Parks’ needs and based on actual project costs.

The size of the program is intended to both be responsive to the need identified by the California Legislature in AB 1083 to increase EV charging infrastructure availability, particularly in California state parks and beaches, while at the same time restricting scope so that learnings from these unique

1 sites can be captured and used to refine future programs.<sup>4</sup> In addition,  
2 PG&E designed this pilot to be responsive to the Assigned Commissioner's  
3 Ruling (ACR), which suggested a cap of pilot expenditures at \$10 million.<sup>5</sup>

## 4 **2. Site Design Structure**

5 EV Charge Parks is designed to provide EV charging infrastructure at  
6 sites under the management of the California Department of Parks and  
7 Recreation. This includes, but is not limited to state parks, beaches, historic  
8 parks, recreational areas, nature reserves, and offices owned by the  
9 California Department of Parks and Recreation.

10 As described in Chapter 1, State Parks already has already procured  
11 EVs and has plans to procure more, in correspondence with Governor  
12 Brown's 2016 ZEV Action plan.<sup>6</sup> Therefore, EV Charge Parks proposes to  
13 install Level 2 chargers at sites identified by State Parks as sites where  
14 charging for electric fleet vehicles is needed today and will be needed going  
15 forward. For purposes of cost estimation, PG&E estimated costs for a site  
16 design which includes four Level 2 charging ports with additional capacity  
17 built and conduit laid for the site to eventually include up to ten Level 2  
18 charging ports. This will enable State Parks in the future to install chargers  
19 with minimal additional infrastructure upgrade costs, enabling increased fleet  
20 electrification over time.

21 EV Charge Parks also proposes to provide charging for visitors to the  
22 state parks which will be distinct from the fleet chargers. In many state  
23 parks, fleet parking lots and visitor parking lots are in different areas.  
24 Additionally, keeping visitor and fleet charging separate enables the fleet  
25 drivers to ensure there are chargers available when they need to charge  
26 their vehicles for operational purposes.

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4 Transportation Electrification: EV Charging Infrastructure: State Parks and Beaches, AB 1083, filed October 10, 2017.

5 ACR in R.13-11-007, January 24, 2018, ACR Providing Guidance to Utilities Electing to Submit Applications, Pursuant to AB 1082 and AB 1083.

6 Office of Governor Edmund G. Brown Jr., "2016 ZEV Action Plan," "Establish new goals for state fleet ZEV purchases so that 50 percent of annual light-duty fleet purchases are ZEVs by 2025."

1 For visitor charging, EV Charge Parks will include both Level 2 and  
2 DCFC. For purposes of cost estimation, PG&E assumed that two different  
3 site designs would be implemented for visitor charging. The first sign design  
4 includes four Level 2 charging ports at each location. The second sign  
5 design includes two Level 2 charging ports with one DC fast charger at each  
6 location. PG&E will work with State Parks to identify which sites require only  
7 Level 2 charging and which would benefit from DCFC in addition to Level 2  
8 charging.

9 At some sites selected for EV Charge Parks, it will not be cost effective  
10 to install grid-connected EV charging infrastructure due to distance from  
11 electric infrastructure with necessary electric capacity. In these locations,  
12 PG&E will determine whether it adequately meets the site's charging needs  
13 to provide an off-grid charging solution that enables vehicle charging without  
14 needing additional electric infrastructure.

### 15 **3. Ownership**

16 At all sites where grid-connected charging is installed under EV Charge  
17 Parks, PG&E will own, operate and maintain the EV Service Connection, EV  
18 Supply Infrastructure, and the EV charger and associated network  
19 hardware. At all sites where off-grid charging is installed, PG&E will own,  
20 operate, and maintain the off-grid charging equipment. This ensures that  
21 State Parks incur no costs or liability related to the installation, use or  
22 maintenance of the charging stations installed under EV Charge Parks,  
23 as required by AB 1083.<sup>7</sup>

### 24 **4. Rates and Pricing**

25 The following section describes the rates and pricing options for the  
26 different types of charging sites installed under EV Charge Parks.

27 Grid-connected fleet charging: Grid-connected chargers installed for  
28 fleet use under EV Charge Parks will be separately metered and be charged  
29 on the appropriate commercial TOU rates. State Parks will be the customer  
30 of record for these meters. These TOU rates will provide price signals to  
31 encourage charging off-peak, resulting in more efficient integration into the  
32 utility grid.

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7 AB 1083, Sec. 2, (f).



1           Grid-connected visitor charging: Grid-connected chargers installed for  
2 visitor use under EV Charge Parks will also be separately metered and be  
3 charged on the appropriate commercial TOU rates. To ensure that State  
4 Parks do not incur costs associated with visitor use of the chargers as  
5 specified by AB 1083, PG&E intends to contract with a third party to operate  
6 the charging equipment who will act as the customer of record on the  
7 chargers' meter.<sup>8</sup> The third party will be responsible for paying the  
8 electricity costs associated with the charging station and can collect revenue  
9 from users of the station.

10           The third party responsible for being customer of record will charge  
11 users for use of the chargers by passing through the TOU rate directly to  
12 drivers with an additional adder to compensate the third party. In  
13 collaboration with State Parks, PG&E will work with the third party to  
14 develop reasonable rates for the visitors' use of the charging stations.

15           PG&E will endeavor to use these same pricing policies for the off-grid  
16 chargers installed through EV Charge Parks to maintain consistency for  
17 visitors. However, PG&E recognizes that there may be areas with  
18 insufficient network to manage payments at these chargers. At these off-  
19 grid sites with insufficient network to manage payments, drivers may not be  
20 charged for use of the stations.

## 21   **C. Procurement, Construction, and Operations (Witness: Benedict Chung)**

22           In this section, PG&E describes the procurement, construction, and  
23 operations of the physical equipment associated with the EV Charge Parks pilot.

### 24   **1. Infrastructure/Equipment Components**

25           For grid-connected charging installed through EV Charge Parks, PG&E  
26 will leverage the infrastructure specifications and standards utilized in  
27 existing PG&E EV programs. The elements of this infrastructure include:

- 28           • A utility pole or underground rise in proximity to the new charging station  
29           site to provide optimal access and a service drop that feeds the  
30           charging station;
- 31           • A transformer, typically pad-mounted, specified to expected load  
32           downstream at the charger equipment;

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8    AB 1083, Sec. 2, (f).

- A dedicated SmartMeter™ and electrical panel to monitor energy usage at the charging stations, and to facilitate accurate billing and energy usage reconciliation between PG&E and PG&E's EV service partners (for visitor charging) and/or State Parks (for fleet charging);
- 7.2 kilowatt (kW) Level 2 EV chargers, which include the charging station casing, user interface components, cables, and connectors, able to serve most EV models using the Society of Automotive Engineers J1772 industry standard connectors for alternating current charging; and
- Network operations equipment including all of the hardware and software required to operate the EV charger and to enable communications and transactions among the operators, the EV driver, and PG&E.

In addition, EV Charge Parks will include two types of equipment not owned by PG&E in existing PG&E transportation electrification programs:

- 50 kW DCFC, which include the charging station casing, user interface components, cables, and connectors; and<sup>9</sup>
- Off-grid chargers that can charge most EV models without requiring connection to the electric grid.

Under EV Charge Parks, PG&E will manage all EV Service Connection and Supply Infrastructure in adherence with policies and procedures outlined in existing PG&E Electric Operations procedures.

PG&E plans to continue participating in the Vehicle Grid-Integration (VGI) Working Group. If and when final recommendations regarding charging infrastructure are developed, PG&E will assess their applicability to the EV Charge Parks pilot, and, to the extent feasible, will endeavor to install charging infrastructure that meets the hardware requirements specified by the VGI Working Group.

## **2. Procurement**

PG&E plans to leverage the results of the existing PG&E EV-related procurement and vendor qualification processes and use the vendors already selected and/or qualified under existing transportation electrification

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<sup>9</sup> PG&E intends to include both Chademo and CCS connectors for DCFC deployed in this pilot.

1 programs. As described in Section A.4, “Leveraged Funding and  
2 Partnerships,” this will streamline the EV Charge Parks pilot so it can be  
3 deployed more rapidly and cost effectively.

4 The procurement processes used to select PG&E’s vendors and to  
5 qualify vendors for customer-owned EVSE under EV Charge Network were  
6 designed to provide customers with a solution that effectively and cost  
7 efficiently meets customer needs while enabling a competitive, innovative  
8 marketplace. This process was approved by the Commission and overseen  
9 by PG&E’s Program Advisory Council (PAC).

10 For DCFC, off-grid chargers, and a third party to serve as customer of  
11 record for grid-connected visitor charging, PG&E intends to procure  
12 solutions through competitive solicitations. PG&E will select a solution or  
13 solutions that meet the needs of the program cost effectively. As  
14 appropriate, PG&E intends to follow the same procurement process for EV  
15 Charge Parks as was used for EV Charge Network which was approved by  
16 the Commission and overseen by PG&E’s PAC.

### 17 **3. Site Design**

18 For sites selected by State Parks as suitable for charging and which  
19 PG&E has identified as viable for installation of grid-connected EV charging  
20 infrastructure, PG&E will design the EV Service Connection and Supply  
21 Infrastructure at each site based on electric load, site-specific access, and  
22 other technical requirements. As needed, PG&E will work with State Parks  
23 to acquire land use easements to house EV supply equipment and the  
24 required number of parking spaces for EVs.

25 Once an EV charging station location is selected, PG&E will design the  
26 infrastructure to provide electric service to the location by following PG&E’s  
27 established procedures. The service connection will be used for the  
28 charging infrastructure and will require dedicated meters and electric panels  
29 to the charging bank to ensure ease of operations and servicing of the site,  
30 while ensuring accurate billing for energy consumed at the charging  
31 stations.

32 Charger equipment and site specifications will address Americans with  
33 Disabilities Act (ADA) requirements, as adopted by California at the time of  
34 charger installations.

#### 4. Construction

EV Charge Parks will follow the construction processes and standards developed for EVCN. The construction will be conducted by the PG&E workforce, pursuant to AB 1083.<sup>10</sup> Construction will be overseen by the PG&E EV Program Management Organization.

#### 5. Maintenance and Operations

The proposed EV Service Connection and Supply Infrastructure will be operated and maintained using established PG&E operations and maintenance (O&M) processes and procedures and in compliance with General Order 165.

PG&E or PG&E's designated service provider will continue to maintain and operate the EV charger and associated network, following the same procedures as those used for EVCN. PG&E will maintain the charging equipment for the life of the equipment.

#### 6. Program Management Organization (PMO)

All program and project management functions will be overseen by the PMO. As described in Section A.4, "Leveraged Funding and Partnerships," EV Charge Parks will leverage the PMO already in place for EVCN to streamline the process, providing more clarity to customers and lowering program costs. The EV Charge Parks program will benefit by adding incremental staff to this organization while building on the existing infrastructure and staff employed as part of the EVCN PMO.

#### 7. Safety

PG&E will be responsible for supporting the construction process by providing overall program compliance (i.e., environmental and regulatory compliance), safety, permitting, inspection, testing, and commissioning of the equipment. As part of this role, PG&E will be responsible for ensuring that the appropriate steps are taken during pre-construction, construction, and ongoing operations.

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<sup>10</sup> AB 1083, Sec. 2, (c): "Charging stations install pursuant to a pilot program approved by the commission pursuant to this section shall be installed and maintained by the utility workforce, or by workers who are paid the prevailing wage for all program-related work."

1 PG&E, along with Southern California Edison and San Diego Gas &  
2 Electric Company, participated in review of the draft safety checklist  
3 developed for the Senate Bill 350 priority review transportation electrification  
4 projects. If and when the Safety Requirement Checklist is finalized, PG&E  
5 will adhere to those requirements to the extent feasible. PG&E will  
6 endeavor to work with the other utilities submitting applications for AB 1083  
7 to develop a safety plan for those pilots.

8 PG&E will report on compliance with applicable requirements during  
9 PAC meetings.

## 10 **8. Summary of Construction and Procurement Costs**

11 **(Witnesses: Lila Grace Brown and Benedict Chung)**

12 Table 3-2 provides a summary of all costs related to construction and  
13 procurement for EV Charge Parks. All costs are incremental to approved  
14 existing transportation electrification programs, and costs underlying the  
15 2017 GRC adopted revenue requirements.

**TABLE 3-2**  
**EV CHARGE PARKS CONSTRUCTION AND PROCUREMENT COSTS**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
1	<b>Charging Site Costs</b>							
2	<u>Capital Costs</u>							
3	Charging Site Service Connection	Benedict Chung	\$178	\$366	\$189	–	–	\$733
4	Charging Site EV Supply Infrastructure	Benedict Chung	295	609	314	–	–	1,218
5	Charging Site Easements (Fees and Services)	Benedict Chung	11	22	12	–	–	45
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7	Charging Site Service Connection Capital Replacement	Benedict Chung	1	2	3	3	3	12
8	Charging Site EV Supply Infrastructure Capital Replacement	Benedict Chung	1	2	3	3	3	12
9	Charging Capital Contingency	Benedict Chung	257	493	255	2	2	1,009
10	Capital Subtotal With Contingency		\$989	\$1,900	\$984	\$8	\$8	\$3,890
11	<u>Expense Costs</u>							
12	Charger & Network O&M costs	Lila Grace Brown	17	51	70	71	72	281
13	Charging Site Service Connection Maintenance	Benedict Chung	–	1	2	2	2	7
14	Charging Site EV Supply Infrastructure Maintenance	Benedict Chung	–	1	2	2	2	7
15	Charging Expense Contingency	Benedict Chung	6	19	26	26	26	103
16	Expense Subtotal With Contingency		\$24	\$73	\$99	\$100	\$102	\$398
17	<b>Charging Site Cost Subtotal</b>							
18	<u>Capital Subtotal With Contingency</u>		\$989	\$1,900	\$984	\$8	\$8	\$3,890

**TABLE 3-2**  
**EV CHARGE PARKS CONSTRUCTION AND PROCUREMENT COSTS**  
**(THOUSANDS OF NOMINAL DOLLARS)**  
**(CONTINUED)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
19	Expense Subtotal With Contingency		\$24	\$73	\$99	\$100	\$102	\$398
20	<b>Other Costs</b>							
21	Capital Costs							
22	Program Management Organization	Benedict Chung	61	166	89	—	—	317
23	Capital Subtotal		\$61	\$166	\$89	—	—	\$317
24	<b>EV Charge Parks Construction and Procurement Costs Subtotal</b>							
25	Capital Subtotal With Contingency		\$1,051	\$2,067	\$1,073	\$8	\$8	\$4,207
26	Expense Subtotal With Contingency		\$24	\$73	\$99	\$100	\$102	\$398

Contingency estimated for the capital and expense costs for EV Charge Parks construction and procurement costs is 35 percent. Sample state parks sites reviewed to develop cost estimates for grid-connected charging indicated a wide range of potential costs, as well as several risk factors that could raise costs during construction, such as permitting and ADA requirements. Because of this, PG&E has assumed a 35 percent contingency for charging sites.

Additionally, a contingency of 35 percent has been applied to the capital and expense for off-grid chargers. Given that these technologies are relatively new and will be deployed through this pilot in remote locations with challenging accessibility and environmental conditions, the actual costs to install and maintain these off-grid chargers may vary from the cost estimations.

#### **D. Site Selection, ME&O (Witness: Lila Grace Brown)**

This section outlines PG&E's proposed process to work with State Parks to select sites for EV charging, and proposed actions over the pilot period to market and provide education associated with the chargers installed for visitor use in the EV Charge Parks pilot.

##### **1. Site Selection**

Outreach for site selection required for the EV Charge Parks pilot differs from outreach for other transportation electrification pilots and programs. AB 1083 specifies:

The Department of Parks and Recreation shall determine which state parks or beaches are suitable for charging stations.<sup>11</sup>

As the primary entity who will work with PG&E on site acquisition is the California Department of Parks and Recreation, all work required to obtain sites will be done through an iterative site selection process conducted with State Parks.

To accomplish this, PG&E intends to implement the following process:

Step 1: Electric infrastructure pre-screen: PG&E intends to analyze the state parks in PG&E's territory to understand the viability of grid-connected charging at each location. This initial evaluation will likely include a desktop

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<sup>11</sup> AB 1083, Sec. 2, (a).



1 review where PG&E will provide a high-level assessment of infrastructure  
2 needed to support charging at the site. Based on this analysis, PG&E can  
3 identify which sites may be viable for grid-connected charging and which  
4 would require an off-grid charger.

5 Step 2: Environmental constraints pre-screen: PG&E intends to  
6 conduct a desktop review to pre-screen all State Parks sites within PG&E  
7 territory to identify possible environmental constraints that could occur as  
8 part of the installation of EV charging infrastructure. This will help PG&E to  
9 identify any environmental conditions that would necessitate lengthy or cost-  
10 prohibitive environmental impact reviews.

11 Step 3: Assessment of additional criteria: PG&E intends to assess  
12 state parks sites to recommend sites suitable for charging based on criteria  
13 that could include, but are not limited to:

- 14 1) Visitorship: PG&E intends to recommend that State Parks prioritize  
15 locations with high annual visitorship, as reported by State Parks. This  
16 will lead to higher utilization of the chargers and increase the visibility of  
17 the chargers, spreading greater awareness of the availability of EV  
18 charging in these locations.
- 19 2) Proximity to DACs: Pursuant to AB 1083, EV Charge Parks will  
20 prioritize parks that serve residents of DACs.<sup>12</sup> Without data on the  
21 proportion of park visitors who are DAC residents, PG&E intends to rely  
22 on a site's physical proximity to a DAC as a proxy that reflects the extent  
23 to which that park serves DACs. PG&E plans to identify those parks  
24 that are closest to DACs and suggest to State Parks that these locations  
25 be prioritized in their selection process.
- 26 3) Availability of Existing or Planned DCFCs Nearby (for sites with DCFC):  
27 PG&E plans to recommend that State Parks choose to install DCFCs in  
28 locations near transit corridors with no existing or planned publicly  
29 accessible DCFCs nearby. To do this, PG&E will identify state parks

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<sup>12</sup> AB 1083, Sec. 2, (3): "An electrical corporation shall prioritize in its proposal those state parks and beaches that serve residents of disadvantaged communities. For these purposes, "disadvantaged communities" means communities identified by the California Environmental Protection Agency pursuant to the Greenhouse Gas Reduction Fund Investment Plan and Communities Revitalization Act (Chapter 4.1 (commencing with Section 39710) of Part 2 of Division 26 of the Health and Safety Code)."

1 located near transit corridors with no DCFCs currently installed or  
2 planned nearby. PG&E intends to leverage data from PlugShare on  
3 publicly accessible DCFCs, and coordinate with the California Energy  
4 Commission (CEC), and other agencies and companies installing or  
5 funding DCFCs. In development of this proposal, PG&E held  
6 conversations with the CEC and the California Department of  
7 Transportation to discuss EV Charge Parks' proposed installation of  
8 DCFCs at state park locations. PG&E intends to continue to coordinate  
9 with these and other groups to optimize investments in DCFC along  
10 transit corridors.

11 Step 4: Recommendations to State Parks: PG&E intends to then  
12 provide a list of recommended sites to States Parks to inform its thinking  
13 about which sites are most suitable for EV charging. Ultimately State Parks  
14 will determine which locations should be considered for EV Charge Parks, at  
15 which point PG&E will conduct a more detailed assessment of applicable  
16 sites to determine which are eligible for the pilot.

17 Step 5: Detailed constraints analysis of priority sites: Once PG&E and  
18 State Parks have identified the top priority sites for installation of EV  
19 chargers, PG&E plans to conduct the appropriate constraints analyses of  
20 the sites to identify natural and cultural resources, additional environmental  
21 constraints, avoidance and minimization measures, and Best Management  
22 Practices to avoid impacts to such resources. If impacts to resources at any  
23 given site are not avoidable, PG&E will recommend for the site to be  
24 removed from the list of viable sites for EV charging infrastructure through  
25 the EV Charge Parks pilot. PG&E does not expect the selection of sites  
26 requiring California Environmental Quality Act review or discretionary  
27 permits as part of this pilot.

28 Through this process, PG&E will collaborate with State Parks to  
29 recommend sites suitable for EV charging under EV Charge Parks.

## 30 **2. Education**

31 This section outlines the proposed components of EV Charge Parks  
32 designed to increase awareness of and education around the chargers  
33 installed through this pilot and EVs more generally.

1           **a. Objectives**

2           The objectives of the ME&O around EV Charge Parks are to:

- 3           1. Facilitate use of the chargers by state park visitors and increase  
4           charger utilization by raising awareness of the availability of EV  
5           charging at select state parks; and  
6           2. Increase confidence in the availability of EV charging across the  
7           state, reducing range anxiety, and increasing EV adoption in PG&E  
8           territory, even amongst those who do not visit or plan to visit state  
9           parks.

10          **b. On-Site Signage**

11          At all sites with visitor charging provided under EV Charge Parks,  
12          PG&E intends to establish educational signage near the chargers. The  
13          signage could provide information about the chargers: how they work,  
14          how they provide environmental benefits, and how they tie to the  
15          mission of the State Parks. The visual display and language on the  
16          signage will be designed with the intention of building on, without  
17          detracting from, the visitors' experiences at the park. Visual display and  
18          language on the signage will be approved by State Parks before it is  
19          installed.

20          **c. Events at the Parks**

21          At parks where visitor charging is installed, PG&E intends to  
22          sponsor educational events. These events will be open to all park  
23          visitors and are intended to inform visitors about the availability of the  
24          charging station and provide education about EV charging and EV  
25          ownership generally. If it makes sense at the site, the event could  
26          include a ride-and-drive element that enables attendees to try driving an  
27          EV. PG&E, coordinating with State Parks, intends to invite other  
28          community groups working on environmental and transportation-related  
29          issues relevant to State Parks to participate in the event.

30          PG&E currently works with the California State Parks Foundation to  
31          hold volunteer events at state parks, particularly around Earth Day. For  
32          EV Charge Parks, PG&E will leverage its relationships and expertise

1 from organizing these events to effectively organize impactful  
2 educational events around the EV chargers.

3 Depending on the size of the park and the interest of State Parks,  
4 each event could include:

- 5 • PG&E representatives with a booth to provide information about the  
6 EV chargers installed at the park, as well as more general  
7 information about EVs including how they work, rebates and  
8 incentives, ways to charge, EV charging rates, etc.;
- 9 • Booths from other local groups working on sustainability and/or  
10 transit related issues; and
- 11 • EV car manufacturers offering test drives of EVs to encourage future  
12 EV ownership while educating customers on the benefits of EV  
13 ownership.

14 PG&E, working with State Parks, intends to organize the event,  
15 identifying and reaching out to community groups to invite to participate  
16 in the event and coordinating with car manufacturers if a ride-and-drive  
17 is appropriate for that event. On the day-of, PG&E will facilitate the  
18 event set-up and clean-up. PG&E will provide signage and food at the  
19 event, as necessary.

### 20 **3. Broader Media Campaign**

21 This section outlines the details of a proposed media campaign to inform  
22 the broader public in PG&E's territory about the availability of charging at  
23 state parks in conjunction with the installation of EV chargers under EV  
24 Charge Parks.

#### 25 **a. Objectives**

26 As a component of EV Charge Parks, PG&E intends to conduct a  
27 broader media campaign across its territory with the objective of  
28 changing drivers' perceptions of the availability of EV charging and the  
29 realities of how many places they can travel to in an EV. This campaign  
30 can leverage people's associations of state parks as protected, natural  
31 places to further the message that there is a need for more sustainable  
32 transportation, and that EVs—with an ever-growing charger network—

are a viable option for drivers to reduce the environmental impact of their trips.

**b. Messaging**

Range anxiety can prevent people from adopting EVs. While most peoples' daily work commutes can be handled in an EV with fewer than 40 miles in range, potential buyers can hesitate to buy an EV due to concerns over how the EV would serve their needs on weekends and vacations, which sometimes involve longer drives to more remote areas.<sup>13</sup>

Installing chargers in state parks provides an opportunity to shift this mindset. Californians often visit parks on longer road trips, with round trips extending beyond the range of many EVs on the market today. Realizing that there is now an opportunity to charge an EV at a remote park while they hike or enjoy the beach may change some drivers' mindsets around the viability of an EV, not only for their day-to-day commute, but also for longer trips.

Therefore, sample key messages for the proposed campaign could include:

- EV charging is available not just at your home, your work and places around town. Visit a state park this weekend and see where else you can charge;
- EVs are a great way to travel across California; they can go the distance, with beautiful spots to charge along the way; and
- You can enjoy and protect California's natural beauty at the same time. Drive an EV next time you visit a state park.

Publicizing the availability of EV chargers at select state parks creates an opportunity to catch the attention and interest of sustainably-minded drivers, even when they are not visiting a state park. This campaign could encourage these drivers to think about more sustainable ways they can travel to their favorite natural places,

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<sup>13</sup> The United States Department of Transportation reports the national average daily commute at approximately 37 miles/day, <https://www.fhwa.dot.gov/ohim/onh00/bar8.htm>.

1 potentially making them more likely to consider an EV the next time they  
2 purchase a car.

3 At the same time, the campaign provides some basic awareness  
4 that many drivers lack: EVs are capable of going longer distances, and  
5 a charging network is developing that can enable a long trip in an EV.  
6 Even drivers who may not visit state parks, but may travel long  
7 distances for work or to other destinations, could realize that they are  
8 enabled to go on their long trips via electrified driving corridors across  
9 the state.

#### 10 **c. Target Audiences**

11 This campaign could target sustainably-minded drivers who could  
12 be encouraged to drive an EV, regardless of whether they visit State  
13 Parks. The campaign could particularly focus on audiences who:

- 14 • Are considering purchasing a vehicle; and
- 15 • Live in key geographic locations that tend to have high visitorship to  
16 state parks where chargers are installed.

#### 17 **d. Marketing Channels**

18 The proposed campaign could include but is not limited to digital  
19 marketing, radio ads, billboards, print media, and earned media. In  
20 addition, PG&E plans to coordinate with other groups that promote and  
21 publicize information related to State Parks, as relevant. Appropriate  
22 channels will be chosen based on budget, charger locations, and the  
23 target audiences and key messages that are developed.

24 Digital marketing can provide a lower cost way to target very specific  
25 audiences. For example, digital ads may be placed to catch the eye of  
26 people researching new cars.

27 Radio ads and billboards help target audiences when they are  
28 outside of the home. These channels can be used to target people at  
29 times and places when they are most likely to be thinking about their  
30 driving behaviors. For example, radio ads could play on weekends  
31 when drivers may be taking road trips. Billboards can be placed on  
32 transit corridors where they catch the eye of drivers thinking about their

commute and their other driving activities. If used, radio ads and billboards will be selectively placed to maximize impact cost efficiently.

In development of the marketing campaign, PG&E intends to identify other groups involved in promoting and publicizing information related to the State Parks, and determine whether there are ways to leverage these groups' existing ME&O channels to publicize the availability of EV chargers in State Parks. For example, in development of this proposal, PG&E spoke with the California State Parks Foundation and with the Surfrider Foundation—groups that could potentially be involved in outreach related to EV Charge Parks.

Additionally, to reduce ME&O costs, PG&E intends to leverage earned media where possible. When relevant, PG&E plans to provide news outlets and other potential earned media channels with information around EV Charge Parks.

#### **e. Coordination With Existing Campaigns**

As part of the ME&O for EV Charge Parks, PG&E plans to identify target audiences, design impactful messaging, and develop an execution strategy. PG&E intends to leverage existing EV-focused media campaigns to ensure cohesive messaging and to create a more impactful project at less cost.

As described in Section A.4, “Leveraged Funding and Partnership,” where possible, PG&E will build on existing messaging and communications around EVs to reduce costs of the campaign and to ensure EV-related messaging is coherent to the public. For example, in development of this proposal, PG&E consulted with Veloz, a non-profit organization with the mission to, “inspire, educate, and empower Californians to drive electric,” to explore how Veloz’s EV-focused outreach could be leveraged for outreach related to EV Charge Parks.<sup>14</sup>

PG&E will endeavor to coordinate with other utilities submitting filings for AB 1083 as appropriate, to leverage the messaging and design of this media campaign to keep costs low and strengthen the messaging across the various utility programs.

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<sup>14</sup> Veloz, “About Us,” <http://www.veloz.org/about/#about>.



1                    Additionally, PG&E intends to coordinate with other groups  
2                    undertaking similar initiatives to electrify transit corridors across the  
3                    state, such as Drive the ARC, CalTrans, West Coast Green Highway,  
4                    and Electrify America. As appropriate, PG&E plans to work with  
5                    interested partners to expand its messaging and the size of the media  
6                    campaign to reach even more Californians with education and  
7                    awareness about the availability of charging across the state to enable  
8                    long trips.

9                    **f. Timing**

10                    PG&E intends to run the proposed media campaign for  
11                    approximately three to six months in the second year of the pilot once  
12                    chargers have been installed at the initial state park locations.

13                    **g. Evaluation**

14                    PG&E intends to track engagement with the campaign through  
15                    metrics, such as: billboard impressions, digital impressions/clicks, radio  
16                    listens, and print impressions. In addition, to understand the impact of  
17                    the media campaign and track whether it meets its objectives, PG&E will  
18                    track metrics, such as charger utilization at the state parks and EV  
19                    registrations in areas targeted by the media campaign. PG&E intends to  
20                    conduct research to understand the campaign's impact in target areas  
21                    around: (1) awareness of EV charging availability in state parks; and  
22                    (2) perceptions of EVs and the availability of EV charging infrastructure,  
23                    generally.

24                    **4. Summary of Site Selection, ME&O Costs**

25                    Table 3-3 provides a summary of all costs related to site selection,  
26                    ME&O for EV Charge Parks. All costs are incremental to existing approved  
27                    transportation electrification programs, and costs underlying the 2017 GRC  
28                    adopted revenue requirements.



**TABLE 3-3  
EV CHARGE PARKS SITE SELECTION, ME&O COSTS  
(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	Witness	2019	2020	2021	2022	2023	Total
1	<u>Expense Costs</u>							
2	ME&O	Lila Grace Brown	\$15	\$609	\$14	—	—	\$639
3	Site Selection	Lila Grace Brown	196	64	33	—	—	293
4	Expense Subtotal		\$212	\$673	\$47	—	—	\$932
5	<u>Site Selection, ME&amp;O</u>							
6	Capital Subtotal		—	—	—	—	—	—
7	Expense Subtotal		\$212	\$673	\$47	—	—	\$932

**E. Pilot Benefits (Witness: Lila Grace Brown)**

This section outlines the benefits of the proposed pilot and how the proposed pilot aligns with ratepayer interest.

**1. Greenhouse Gas (GHG), Air Quality, and Other Benefits**

EV Charge Parks is designed to generate GHG and air quality benefits, and benefits California State Parks:

GHG and Air Quality benefits: EV Charge Parks is designed to increase adoption of EVs by improving availability of charging stations and increasing awareness and understanding of EVs and EV charging availability through ME&O. All Californians benefit as EVs displace gasoline-powered vehicles, lowering GHG emissions, improving air quality, and reducing dependence on imported fossil fuels.

California State Parks benefits: EV Charge Parks directly benefits the State Parks by providing EV chargers to enable fleet electrification and providing EV chargers so visitors with EVs can more easily visit the State Parks.

**2. Ratepayer Interest**

Public Utilities Code (Pub. Util. Code) §§ 740.8(a) and 740.8(b) define ratepayer interest as the following:

§ 740.8. Direct benefits that are specific to ratepayers, consistent with both of the following:

- a) Safer, more reliable, or less costly gas or electrical service, consistent with Section 451, including electrical service that is safer, more reliable, or less costly due to either improved use of the

electric system or improved integration of renewable energy generation.

b) Any of the following:

- 1) Improvement in the energy efficiency of travel.
- 2) Reduction of health and environmental impacts from air pollution.
- 3) Reduction of greenhouse gas emissions related to electricity and natural gas production and use.
- 4) Increased use of alternative fuels.
- 5) Creating high-quality jobs or other economic benefits, including in disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.

PG&E's EV Charge Parks pilot is in the interest of ratepayers as defined in Pub. Util. Code § 740.8. Pursuant to Section 740.8(a), the program will provide:

- Safer service as all components of the pilot will either use, or promote the use of licensed electricians with EV infrastructure training certification for installation, thereby lowering the risk of vehicles being charged with equipment installed using unsafe electrical practices; and
- Less costly and more reliable electrical service resulting from encouraging the use of TOU rates as a foundation for load management which will improve the integration of renewable generation and shift load to hours of the day where there is spare capacity on the grid.

Further, EV Charge Parks promotes accelerated adoption of EVs, which increases the use of an alternative fuel as defined by Pub. Util. Code § 740.8(b).

## **F. Data and Reporting of Performance Accountability Metrics**

**(Witness: Lila Grace Brown)**

This section outlines the process PG&E intends to use to collect and report data related to performance of the EV Charge Parks pilot.

### **1. Data Collection**

The customer of record, in partnership with the EVSP, will be required to provide information to PG&E as appropriate regarding the operations of the charging equipment at the customer site to assist in the preparation of the monitoring and evaluation report, and consistent with data, reporting and confidentiality requirements described in the approved EVCN Program.

## 2. Performance Accountability Metrics

PG&E will issue an annual report to the Commission on data collection and monitoring for the EV Charge Parks pilot which will, where feasible, include the metrics shown in Table 3-4.

**TABLE 3-4  
EV CHARGE PARKS METRICS**

Line No.	Category	Metric
1	Deployment	Number of sites installed Site description EVSEs installed (including power rating, make and model) Deployment time Installation cost (total and average) Deployment within or adjacent to DACs Supplier diversity and workforce objective achievement
2	Operational	Utilization rate by site, by type of charger Applicable rate kW profile kilowatt-hour (kWh) usage by price Other usage data: plugged in time, charging duration, charging power level Charging load profiles (aggregate and by charger) Customer experience and satisfaction
3	Descriptive	Key barriers to deployment of EV charging infrastructure at state parks and the pilot's approaches to overcome these barriers Report-outs from educational events Insights on the effect of the pilot on EV awareness and perceptions around EVs

## G. Conclusion (Witness: Lila Grace Brown)

The primary objective of PG&E's EV Charge Parks pilot is to support the mission of State Parks while facilitating the deployment of EV charging infrastructure that enables park visitors to charge and supporting the electrification of the State Parks' fleet. In addition, the pilot aims to encourage EV adoption more broadly by installing EV charging infrastructure in remote areas where minimal charging infrastructure exists today, and publicizing the availability of charging in remote locations.

The pilot elements described in this chapter reflect a sensible forecast of scope, schedule, and costs based on the guidance from the Assigned Commissioner's Ruling as well as AB 1083. EV charging installations will only

1 occur after the pilot eligibility criteria are met to ensure that funds are well-spent  
2 on viable projects that meet the pilot objectives.

3 PG&E requests approval of the full costs summarized in Table 3-1 above  
4 and resulting revenue requirements. PG&E will install additional charging  
5 infrastructure at State Parks to the extent approved funding remains available  
6 beyond targeted deployment. If demand for EV Charge Parks is less than the  
7 estimated costs and resulting revenue requirements during the approximately  
8 2-year period of the pilot, PG&E may file a Tier 1 AL to extend the program  
9 deployment length to utilize the remaining program funds.

**PACIFIC GAS AND ELECTRIC COMPANY**

**CHAPTER 3**

**ATTACHMENT 1**

**ASSEMBLY BILL 1083 AND ACR COMPLIANCE TABLE**

1                   **PACIFIC GAS AND ELECTRIC COMPANY**  
2                               **CHAPTER 3**  
3                               **ATTACHMENT 1**  
4                   **ASSEMBLY BILL 1083 AND ACR COMPLIANCE TABLE**

5           The below table references the text in this application that fulfills  
6 requirements articulated in Assembly Bill (AB) 1083<sup>1</sup> and in the guidance  
7 provided in the Assigned Commissioner’s Ruling (ACR).<sup>2</sup> Pursuant to the  
8 legislation and the ACR, in development of this proposal, Pacific Gas and  
9 Electric Company (PG&E) consulted with the: California Department of Parks  
10 and Recreation, California Air Resources Board, California Energy Commission,  
11 and California Public Utilities Commission’s (CPUC) Energy Division, as well as  
12 other relevant organizations to understand charging needs at state parks.  
13 Additionally, pursuant to the guidance in the ACR, PG&E reviewed the proposal  
14 for Electric Vehicle (EV) Charge Parks with PG&E’s Program Advisory Council.

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1   Transportation Electrification: EV Charging Infrastructure: State Parks and Beaches,  
AB 1083, filed October 10, 2017.

2   ACR in Rulemaking 13-11-007, ACR Providing Guidance to Utilities Electing to Submit  
Applications, Pursuant to AB 1082 and AB 1083, January 24, 2018.

**TABLE 3-1  
AB 1083 AND ACR COMPLIANCE TABLE**

Line No.	Category	Requirement	Reference
1	AB 1083	Have cost recovery mechanisms that allow for cost recovery up to a CPUC-defined limit.	Chapter 4, Section D
		Minimize costs and maximize benefits.	Chapter 1, Section E
		Does not unfairly compete with non-utility enterprises.	Chapter 1, Section G
		Include performance accountability measures.	Chapter 3, Section F.2
		Are in the interest of ratepayers.	Chapter 3, Section E.2
		Use workers paid the prevailing wage or employed by the utility to install charging stations.	Chapter 3, Section C.4
		Require the site hosts to participate in a time-variant electric rate for charging stations.	Chapter 3, Section B.4
		Prioritize sites located in disadvantaged communities.	Chapter 3, Section D.1
2	Portfolio Fit	Describe any current transportation electrification projects at any schools; describe proposal alignment with broader transportation electrification portfolio.	Chapter 3, Section A.3
		Explain the expected greenhouse gas and air quality benefits of the pilot.	Chapter 3, Section E.1
		Explain how the pilot leverages the lessons learned from ongoing transportation electrification work.	Chapter 3, Section A.4
3	Project Summary	Include the number of sites and charging ports.	Chapter 3, Section B.1
		Include the capital costs and expenses associated with the pilot.	Chapter 3, Section A.5
		Explain the process to choose vendors for equipment, construction, and services.	Chapter 3, Section C.2
		Explain the process the utilities will use to select appropriate pilot sites.	Chapter 3, Section D.1
		Specify the type and power level of charging equipment.	Chapter 3, Section C.1
		Specify the vehicle type (e.g., personal vehicle, fleet vehicle, school bus) that will use the charging equipment.	Chapter 3, Section A.2
4	Charging Equipment	Include all the infrastructure necessary for charging, including the make-ready infrastructure, and identify who will install, own, and maintain the infrastructure.	Chapter 3, Section B.3
		Explain how PG&E has considered the recommendation from the CPUC's Vehicle Grid Integration Working Group.	Chapter 3, Section C.1

**TABLE 3-1  
AB 1083 AND ACR COMPLIANCE TABLE  
(CONTINUED)**

Line No.	Category	Requirement	Reference
5	Cost Recovery	State the annual and cumulative revenue requirement associated with the proposal.	Chapter 4, Section C.1
6	Pilot Outreach	Describe plan to engage stakeholders and identify potential sites for charging infrastructure.	Chapter 3, Section D.1
7	Data Collection and Evaluation	Propose a plan for data gathering, reporting, and evaluation.	Chapter 3, Section F.1
8	Rate and Load Impacts	Describe additional requirements necessary to manage charging load.	Chapter 3, Section B.4
9	Leveraged Funding and Partnerships	Explain plan to leverage funding to support the pilot and identify project partners or state/local agencies that will provide guidance and expertise during the implementation.	Chapter 3, Section A.4
10	Safety	Include a plan to ensure worker, customer, and driver safety based on draft safety checklist developed for the SB350 priority review TE projects, and contain any additional safety requirements specific to the proposed pilots; work with other utilities to develop a safety plan	Chapter 3, Section C.7



**PACIFIC GAS AND ELECTRIC COMPANY**  
**CHAPTER 4**  
**PROGRAM COSTS, AND**  
**RESULTS OF OPERATIONS, AND COST RECOVERY**

PACIFIC GAS AND ELECTRIC COMPANY  
CHAPTER 4  
PROGRAM COSTS, AND  
RESULTS OF OPERATIONS, AND COST RECOVERY

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**PACIFIC GAS AND ELECTRIC COMPANY**  
**CHAPTER 4**  
**PROGRAM COSTS, AND**  
**RESULTS OF OPERATIONS, AND COST RECOVERY**

**A. Introduction**

**1. Purpose and Scope**

This chapter provides Pacific Gas and Electric Company's (PG&E) 2019-2023 capital and expense forecasts for its Electric Vehicle (EV) Charge Schools and EV Charge Parks pilots ("Pilots"). This chapter also provides an estimate of the revenue requirement needed to support PG&E's Pilots from 2019 through 2023 based on the information presented in Chapters 2 and 3 of this application.

As discussed in the "Cost Recovery" section (Section D) of this chapter, the revenue requirement will be recorded and trued-up through a new subaccount under the existing Transportation Electrification Balancing Account (TEBA).<sup>1</sup> The revenue requirement for the final cost recovery will be established based on a recorded revenue requirement calculation using the same Results of Operations (RO) assumptions presented here, updated as appropriate for authorized financial factors and tax parameters.

All pilots presented in this application are incremental to, and were not requested in General Rate Case (GRC)-approved or other California Public Utilities Commission (CPUC or Commission)-approved funding. PG&E is requesting that the CPUC approve a total of \$11.3 million for program costs, consisting of \$8.9 million in capital expenditures and \$2.4 million in expense as shown in Table 4-1.

**B. EV Charge Schools and EV Charge Parks Costs**

**(Witnesses: Lila Grace Brown and Benedict Chung)**

**1. Summary of Request**

The cost forecast in Chapters 2 and 3 assumes that the costs will be incurred after approval of PG&E's Pilots and deployment will take

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<sup>1</sup> TEBA was approved in PG&E's Application 17-01-022 to support Senate Bill 350 Transportation Electrification.

approximately two years. Table 4-1 provides a summary of capital and expense costs for the Pilots.

The costs for the Pilots are uncertain due to unique features of the locations targeted by the Pilots. Schools can be located in variable types of locations (i.e., rural, suburban, urban) and are subject to requirements that can increase per-site costs.<sup>2</sup> State parks have highly variable layouts and availability of existing infrastructure that will influence construction costs. Therefore, actual costs and specific sites will vary from those used to develop these estimates, and PG&E will fund EV Charge Schools and EV Charge Parks up to the overall approved program costs. If demand for EV Charge Schools and EV Charge Parks results in lower than authorized spending, PG&E may file a Tier 1 Advice Letter to extend the program deployment length to utilize the remaining program funds.

**TABLE 4-1**  
**EV CHARGE SCHOOLS AND PARKS CAPITAL AND EXPENSE AMOUNTS (2019-2023)**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	2019	2020	2021	2022	2023	Total
1	<u>EV Charge Schools Pilot (w/ Contingency)</u>						
2	Capital	\$1,123	\$2,311	\$1,200	\$15	\$16	\$4,664
3	Expense	410	355	200	67	68	1,100
4	Total	\$1,533	\$2,665	\$1,400	\$82	\$84	\$5,764
5	<u>EV Charge Parks Pilot (w/ Contingency)</u>						
6	Capital	\$1,051	\$2,067	\$1,073	\$8	\$8	\$4,207
7	Expense	236	746	146	100	102	1,330
8	Total	\$1,287	\$2,813	\$1,219	\$108	\$110	\$5,537
9	Total Capital (w/ Contingency)	\$2,173	\$4,378	\$2,273	\$23	\$24	\$8,871
10	Total Expense (w/ Contingency)	\$646	\$1,101	\$346	\$167	\$170	\$2,430
11	Grand Total	\$2,819	\$5,478	\$2,619	\$191	\$194	\$11,301

<sup>2</sup> For example, because public schools are subject to the rules of the Department of State Architect, additional reviews and approvals may be required at school sites, which can lengthen time and costs associated with the installation.

## 2. Program Deployment Plan

While the Pilots' deployment periods are expected to be completed over the course of approximately two years following CPUC approval, PG&E's costs in Table 4-1 include ongoing operations and maintenance (O&M) costs through 2023. Ongoing O&M costs beyond 2023 for the EV infrastructure included in this application will roll into PG&E's subsequent GRC.<sup>3</sup>

### C. Results of Operations (Witness: Elizabeth Chan)

#### 1. Summary of Proposal

PG&E's cost of service for the Pilots, as expressed in the revenue requirement, is calculated based on PG&E's planned capital expenditures and expenses. Ongoing operating expenses necessary to support and maintain the program investments placed in service through 2023 will be recovered through the TEBA until the end of 2023, then included in the next GRC following the 2020 GRC.

PG&E presents the forecast revenue requirements in Table 4-2.

**TABLE 4-2**  
**EV CHARGE SCHOOLS AND PARKS FORECAST REVENUE REQUIREMENT (2019-2023)**  
**(THOUSANDS OF NOMINAL DOLLARS)**

Line No.	Description	2019	2020	2021	2022	2023	Total
1	EV Charge Schools Pilot	\$519	\$782	\$947	\$904	\$867	\$4,018
2	EV Charge Parks Pilot	312	1,047	663	686	669	3,378
3	Total	\$831	\$1,829	\$1,610	\$1,590	\$1,537	\$7,396

#### 2. Operations and Maintenance Expenses

The O&M expense cost estimates for 2019 through 2023 as shown in Table 4-1 include labor, materials, supplies, contracts, and other expenses related to implementing PG&E's Pilots. These expenses are estimated in

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<sup>3</sup> PG&E has proposed recovery of ongoing O&M costs for infrastructure requested in this application through 2023 in the event that the CPUC decides to lengthen the rate case cycle to once every four years. If the CPUC decides to keep the three-year rate case cycle and PG&E files a GRC for test year 2023, PG&E will roll the ongoing O&M costs for the EV infrastructure requested in this application in its GRC starting with test year 2023 instead.

nominal dollars. This is consistent with the method that PG&E uses in its GRC applications. The escalation rates used to develop the nominal dollar forecasts are based on IHS Power Planner Service, second quarter 2018 forecast for materials and labor (methodology consistent with those adopted in the 2017 GRC Decision (D.) 17-05-013). Incremental PG&E labor includes standard burdens such as payroll taxes and direct benefits. Non-incremental costs include indirect employee benefits such as those associated with post-retirement, long-term disability, workers compensation and casualty insurance, and are excluded from the expense cost estimates.

### **3. Capital-Related Inputs**

The primary capital-related cost inputs to the revenue requirement or cost of service calculation are summarized in Table 4-1. Capital-related cost inputs are grouped into asset classifications as shown in Tables 4-3 and 4-4. EV Service Connection capital costs are grouped by the following classifications: (1) Line Transformers – Underground; (2) Distribution Services – Underground; and (3) Meters. EV Supply Infrastructure capital costs are grouped by the following classification: (1) Charging Stations; (2) Infrastructure; (3) Installations on Customer Premises; and (4) Energy Storage (Off-Grid Charger). The tax treatment is discussed in Section C.4.b.3.

### **4. Elements of the Results of Operations Calculation**

The annual revenue requirement calculations for the Pilots as presented in Table 4-2 show the revenue requirements that PG&E needs to cover program expenses and capital-related costs for 2019 through 2023.

#### **a. Expense**

In addition to the costs described in Chapters 2 and 3, additional expense-related costs reflected in the 2019 through 2023 revenue requirements calculated in this chapter also include business and other taxes, which are based on the currently effective tax rates.

Also, PG&E applied a Revenue Fees and Uncollectibles (RF&U) factor of 0.011261 (electric) to the revenue requirement. This RF&U factor was determined using the methodology adopted in PG&E's

2017 GRC Decision (D.17-05-013)<sup>4</sup> using the latest available data for the year 2018. The recorded revenue requirement will use the updated RF&U factors, as appropriate.

**b. Capital**

The various capital-related components of the RO calculation are discussed below.

**1) Depreciation**

Depreciation is included in the cost-of-service calculation as both depreciation expense and accumulated depreciation.

Depreciation expense is calculated using depreciation accrual rates based on the straight line, remaining life method in accordance with the Commission Standard Practice U-4, "Determination of Straight Line Remaining Life Depreciation Accruals." Depreciation means the loss in value of depreciable assets in the course of service. The objective of depreciation is to recover the original cost of fixed capital (less estimated net salvage) over the useful life of the property. It is through depreciation expense that a utility recovers its original capital investment through rates.

PG&E classified the capital additions by plant type and asset account, thereby assigning the appropriate depreciation rate and service life. These classifications are shown for EV Service Connection and EV Supply Infrastructure investments in Table 4-3. For each classification, PG&E estimates depreciation expense by multiplying the weighted average plant-in-service by the corresponding depreciation rate. PG&E estimates the EV Service Connection depreciation expense using the depreciation rate schedule as authorized in the 2017 GRC Decision.<sup>5</sup> Table 4-3 also summarizes the depreciable lives and depreciation rates that PG&E proposes for its EV Supply Infrastructure investments. The parameters and rates of the Charging Stations and Infrastructure

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<sup>4</sup> 2017 PG&E GRC D.17-05-013, Section 4.1.5.7, p. 94.

<sup>5</sup> 2017 PG&E GRC D.17-05-013, Section 4.1.9.1, as provided in Appendix C of the Settlement Agreement.

1 asset classes were approved in the EV Infrastructure and Education  
2 Program Decision (D.16-12-065). All depreciation rates can be  
3 updated by a subsequent GRC rate case decision. PG&E is  
4 proposing two new asset classes for installations on customer  
5 premises and the off-grid charger investment, as shown in Table 4-  
6 3. The off-grid charger Energy Storage asset is assumed to have a  
7 service life of 10 years, consistent with industry information around  
8 the asset components. Assets related to installations on customer  
9 premises at school locations are assumed to have a service life of  
10 eight years due to a requirement in Assembly Bill (AB) 1082 which  
11 allows schools participating in the EV Charge Schools Pilot to  
12 request removal of the EV chargers after eight years. As a result of  
13 this legislative stipulation, an 8-year asset life is a reasonable asset  
14 life that ensures that the installations on customer premises have  
15 been fully depreciated after eight years if the schools choose to  
16 request charger removal at that time.<sup>6</sup>

17 While both the EV Charge Schools Pilot and EV Charge Parks  
18 Pilot share the same EV Service Connection asset classes and the  
19 Charging Stations asset class, the EV Charge Parks Pilot uses the  
20 existing Infrastructure asset class as well as the new Energy  
21 Storage (Off-Grid Charger) asset class, and the EV Charge Schools  
22 Pilot uses the new Installations on Customer Premises asset class  
23 with an 8-year asset life in line with legislation as described above.

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<sup>6</sup> AB 1082, Sec 2, (i): “After a school district, county office of education, private school, or other educational institution has participated in the program for eight years, the school district, county office of education, private school, or other educational institution may cease participation in the pilot program and request removal of the charging station by providing 180-day notice to the electrical corporation.”



**TABLE 4-3  
BOOK DEPRECIATION ASSUMPTIONS**

Line No.	FERC Account	Asset	Average Service Life (Years)	Net Salvage Percent	Depreciation Rate (%)
1		<u>Electric Vehicle Service Connection</u>			
2	368	Line Transformers – Underground	31	(20)	4.18
3	369	Distribution Services – Underground	45	(45)	3.21
4	370	Meters	20	(15)	6.21
5		<u>Electric Vehicle Supply Infrastructure</u>			
6	371	Charging Stations	10	–	10
7	371	Infrastructure	45	(45)	3.21
8	371	Installations on Customer Premises	8	–	12.5
9	363	Energy Storage (Off-Grid Charger)	10	–	10

Accumulated depreciation is calculated by adding estimated depreciation expense and net salvage value to the prior year's end-of-year reserve balance and subtracting forecasted asset retirements.

## 2) Return on Rate Base

The elements of rate base included are: plant-in-service, plus working capital, less deferred taxes, and less accumulated depreciation. Plant-in-service is the used and useful infrastructure required by the Pilots. In developing the associated rate base, certain deductions are made. A deduction is made for the accumulated deferred taxes associated with these assets. These deferred taxes result from following the Modified Accelerated Cost Recovery System (MACRS) tax depreciation method for Federal Income Tax (FIT) purposes. Due to the timing differences that result from the use of this tax depreciation method, taxes that have been paid for by the customer are not paid to the Internal Revenue Service until a later date. Finally, depreciation reserve is subtracted to derive rate base.

PG&E multiplies the currently adopted composite Rate of Return (ROR) of 7.69 percent by the Pilot program average rate base for each year to calculate the return on rate base. This calculation uses the ROR and capital ratios adopted in PG&E's

2018 authorized Cost of Capital (COC) decision (D.17-07-005).<sup>7</sup>  
Subsequent calculations of recorded revenue requirements for entry  
into the TEBA will incorporate the latest authorized ROR for capital-  
related revenue requirements.

### 3) Income Tax and Tax Depreciation Assumptions

This section describes the assumptions and calculations used in  
the revenue requirement calculations to estimate depreciation for  
income tax purposes. This filing takes into account the “Tax Cuts  
and Jobs Act” enacted on December 22, 2017, which included the  
Federal Corporate Income Tax Rate reduction from 35 percent to  
21 percent, effective January 1, 2018. PG&E’s tax rate in prior  
years (e.g., 2016 and 2017) was 35 percent. PG&E estimates  
California Corporation Franchise Taxes and FITs based on net  
operating income before income taxes. FIT expense is the  
product of the currently effective corporate income tax rate  
(21 percent) and federal taxable income. Likewise, state income  
tax expense is the product of the statutory rate (8.84 percent) and  
the state taxable income.

FITs are computed on a normalized basis. This allows PG&E to  
recognize the timing differences between book and federal tax  
depreciation. This difference multiplied by the federal tax rate is  
called deferred FITs, and is included as a credit to rate base.

State income taxes are calculated on a flow-through basis.  
Therefore, the customers receive an immediate benefit from the use  
of accelerated state tax depreciation. There is no associated rate  
base deduction for deferred state taxes.

PG&E followed MACRS and Asset Depreciation Range<sup>8</sup>  
guidelines for classifying the Pilots program capital additions and  
calculating federal and state tax depreciation.

Table 4-4 summarizes the federal and state tax depreciation  
methods used in the RO calculations. Subsequent calculations of

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<sup>7</sup> AL 3887-G/5148-E, approved on October 26, 2017, established debt rates.

<sup>8</sup> Uses Sum of Years Digits (SYD) method.

capital-related revenue requirements for entry into the TEBA will incorporate the latest authorized or best available tax accounting parameters.

**TABLE 4-4  
TAX DEPRECIATION ASSUMPTIONS**

Line No.	Asset	Federal Tax Method	State Tax Method
1	<u>Electric Vehicle Service Connection</u>		
2	Line Transformers – Underground	20-Year MACRS	30-Year SYD
3	Distribution Services – Underground	20-Year MACRS	30-Year SYD
4	Meters	5-Year MACRS	6-Year SYD
5	<u>Electric Vehicle Supply Infrastructure</u>		
6	Charging Stations	7-Year MACRS	12-Year SYD
7	Infrastructure	7-Year MACRS	12-Year SYD
8	Installations on Customer Premises	7-Year MACRS	12-Year SYD
9	Energy Storage (Off-Grid Charger)	7-Year MACRS	12-Year SYD

#### **4) Property Tax**

Property tax calculations are determined by multiplying the taxable Plant Less Depreciation (Net Plant) by the property tax factor. The property tax factor is comprised of the adjusted base year market-to-cost ratio multiplied by the composite tax rate. The adjusted market-to-cost ratio is the relationship between the most current assessment (adjusted) for fiscal year 2019-2020 and the taxable Net Plant. The final Property Tax expense amount is determined using two estimated fiscal period assessments. For example, test year 2015 property tax expense is comprised of one-half of fiscal year 2014-2015 and one-half of fiscal year 2015-2016.

#### **c. Conclusion and Results of Operations**

The capital expenditures and operating expenses described above and PG&E's adopted COC and tax parameters are used to determine the amount of revenue necessary to recover the costs of PG&E's Pilots. This amount of revenue is known as the revenue requirement or cost of service. PG&E's revenue requirement request is based on the 2018 COC approved in D.17-07-005 and the latest authorized or best

1 available tax parameters. On a recorded basis, the COC rates and tax  
2 parameters will be updated with the most recent adopted rates.

3 For capital expenditures, the revenue requirement is calculated to  
4 recover the investments through depreciation; the return on investments  
5 through the application of the COC (ROR) to the rate base; income  
6 taxes associated with the return on equity and with the difference in  
7 timing of costs between book and tax depreciation calculations; and  
8 property taxes on unrecovered investments (net plant).

9 Revenue fees and uncollectible expenses are added to the  
10 combined capital-related and expense-related revenue requirement.  
11 The factors used for this calculation are based on the methodology  
12 adopted in PG&E's 2017 GRC D.17-05-013.

#### 13 **D. Cost Recovery (Witness: Paulina Pra)**

##### 14 **1. Summary of Proposal**

15 PG&E is proposing cost recovery for the EV Charge Parks and EV  
16 Charge Schools Pilots through two new subaccounts in the TEBA and is  
17 requesting recovery of the Pilots through the distribution rate.<sup>9</sup> Authorized  
18 and actual revenue requirements associated with the EV Charge Parks and  
19 EV Charge Schools Pilots will be recorded in their respective subaccounts.  
20 PG&E is also requesting that a full review of the forecast costs take place as  
21 part of this application. If PG&E's cost forecast for the Pilots is approved,  
22 the authorized revenue requirements and actual revenue requirements,  
23 based on actual costs incurred, for each Pilot will be recorded to its  
24 respective subaccount. PG&E is requesting that actual costs at or below the  
25 total forecast cost approved for the Pilots be found reasonable and not be  
26 subject to an after-the-fact reasonableness review.

##### 27 **2. Revenue Requirement Request**

28 The forecasted revenue requirements presented in PG&E's EV Charge  
29 Schools and EV Charge Parks Pilots total \$7.4 million over the period 2019

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<sup>9</sup> AL 5222-E, Establishment of the TEBA Pursuant to D.18-01-024, filed on January 26, 2018 and approved by the Commission on February 23, 2018, authorized the establishment of TEBA and separate subaccounts for five Priority Review Projects.

1 through 2023, as shown in Table 4-2 above.<sup>10</sup> The revenue requirements  
2 for the EV Charge Schools Pilot was \$4.02 million and the revenue  
3 requirement for the EV Charge Parks Pilot was \$3.38 million.

### 4 **3. Cost Recovery Proposal**

5 PG&E requests that the Commission adopt its ratemaking proposal to  
6 establish two separate subaccounts in the existing TEBA for EV Charge  
7 Parks and EV Charge Schools, which would establish a forecast cost for  
8 each of the two pilots that will allow PG&E to recover the actual revenue  
9 requirements up to the level of the forecast total capital and expense  
10 expenditures. Specifically, PG&E is requesting that separate subaccounts  
11 be established in the TEBA for:

- 12 a) EV Charge Parks
- 13 b) EV Charge Schools

14 The EV Charge Parks and EV Charge Schools subaccounts would be  
15 one-way balancing accounts, be in effect over the term of the Pilots and  
16 record capital and expense revenue requirements associated with actual  
17 costs up to the level of the authorized forecast. The EV Charge Parks and  
18 EV Charge Schools subaccounts will compare the forecast revenue  
19 requirement included in rates to the actual revenue requirement based on  
20 actual costs incurred. The balance in the account will be transferred to  
21 Distribution Revenue Adjustment Mechanism (DRAM) if the actual costs for  
22 the Pilots are at or below the authorized revenue requirement.

23 On an annual basis, the revenue requirement recorded in the EV  
24 Charge Parks and EV Charge Schools subaccounts would be trued-up by  
25 transferring the subaccount balance to the DRAM as part of the Annual  
26 Electric True-up process at the end of the year for rates effective January 1  
27 of the following year.

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<sup>10</sup> PG&E applied a Revenue Fees and Uncollectibles (RF&U) factor of 0.011261 (electric) to the revenue requirement. This RF&U factor was determined using the methodology adopted in PG&E's 2017 GRC D.17-05-013 using the latest available data for the year 2018. The recorded revenue requirement will use the updated RF&U factors, as appropriate.

1       **4. Estimated Residential Bill Impact**

2               Based on rates currently in effect, the bill for a typical residential  
3       bundled non-California Alternate Rates for Energy (CARE) customer using  
4       500 kilowatt-hours per month would increase \$111.59 to \$111.61, or  
5       0.02 percent.

6       **5. Cost Reasonableness**

7               The total capital and expense expenditure forecasted for the Pilots is  
8       \$11.3 million. PG&E requests that the Commission make a finding upfront  
9       that spending for the Pilots, at or below the forecast capital and expense  
10      expenditure, is reasonable and not subject to after the fact reasonableness  
11      review. If demand for EV Charge Schools and EV Charge Parks results in  
12      lower than authorized spending, PG&E may file a Tier 1 Advice Letter to  
13      extend the program deployment length to utilize the remaining  
14      program funds.

**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX A**  
**LETTERS OF SUPPORT**



July 27, 2018

Mr. Steven Malnight  
Senior Vice-President  
Pacific Gas & Electric Company  
77 Beale St.  
San Francisco, CA 94105

Dear Mr. Malnight,

California State Parks Foundation is dedicated to protecting the invaluable natural, historical, and cultural resources contained within our 280 California state parks. Supported by over 50,000 members, California State Parks Foundation works to improve our state parks network by orchestrating volunteering, advocacy, and partnership efforts across the state.

We support Pacific Gas & Electric's effort to install electric vehicle charging stations in California state parks. Our organization is dedicated to conserving California's natural resources and clean air is a vital component of a healthy environment. Many people travel to California state parks using in electric vehicles and PG&E's initiative will help make their visits possible.

Reducing emissions and clean air is important to California State Parks Foundation. As such, we support PG&E's work to install electric vehicle charging stations in state parks.

Sincerely,

A handwritten signature in black ink, appearing to read "Rachel Norton". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Rachel Norton  
Executive Director





July 30, 2018

California Public Utilities Commission  
Commissioner Carla Peterman  
505 Van Ness Avenue  
San Francisco, CA 94102

Dear Carla Peterman:

Re: Support of PG&E's AB1083 Pilot Program in State Parks

California State Parks (State Parks) is working with Pacific Gas and Electric Company (PG&E) in a pilot program under Assembly Bill 1083 (Burke, Ch. 638, Statutes of 2017), to install electric vehicle (EV) charging stations at numerous state parks, museums, and beaches throughout PG&E service territory. If PG&E is successful with their submittal to the California Public Utilities Commission (CPUC), State Parks will work with PG&E to install EV charging stations at State Parks in PG&E territory, which could include but are not limited to:

- Lake Oroville State Recreation Area
- Mount Diablo State Park
- Angel Island State Park
- Marconi Conference Center
- Carnegie State Vehicular Recreation Area
- Pismo State Beach
- Folsom Lake State Recreation Area
- Armstrong Redwoods State Natural Reserve
- Henry Cowell Redwoods State Park
- Half Moon Bay State Beach
- Columbia State Historic Park
- Pfeiffer Big Sur State Park

The installation of the additional EV charging capacity will link some of the most popular State Parks and beaches with the surrounding EV infrastructure and community needs. EV charging stations and the promotion of electric vehicle usage is a key component of the "Cool Parks" initiative and State Parks' Road Map to Achieving Executive Orders B-18-12 & B-16-12. The "Cool Parks" initiative is State Parks' plan to mitigate and adapt to climate change and provide public education. The prominent display of EV chargers will encourage electric vehicles to visit the state parks system and promote the adoption of electric vehicles.

State Parks has agreed to work with the utility companies to select appropriate sites for installation of EV chargers, and to coordinate with PG&E to oversee installation. State Parks supports the proposal that PG&E maintain ownership and all responsibility for operations and maintenance of the charge stations, as authorized by AB 1083.

Sincerely,



Lisa Ann L. Mangat  
Director, California State Parks

**PACIFIC GAS AND ELECTRIC COMPANY**  
**APPENDIX B**  
**STATEMENTS OF QUALIFICATIONS**

**PACIFIC GAS AND ELECTRIC COMPANY**  
**STATEMENT OF QUALIFICATIONS OF**  
**LILA GRACE (GRACIE) BROWN**

Q 1 Please state your name and business address.

A 1 My name is Lila Grace (Gracie) Brown, and my business address is Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am a Principal Business Analyst on PG&E's Clean Transportation team within the Grid Integration and Innovation Department. My responsibilities are related to strategy and policy design for PG&E's clean transportation programs.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Arts degree in Environmental Science and Public Policy from Harvard University in Cambridge, Massachusetts; and a Master's of Business Administration degree from Stanford University's Graduate School of Business in Palo Alto, California. I joined PG&E Corporation in July 2016 and worked on Corporate Strategy. I joined PG&E in January 2018. Prior to PG&E, I worked on strategy at C3 Energy and in consulting at McKinsey & Company.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's Transportation and Electrification for Schools and State Parks Application:

- Chapter 1, "Summary of PG&E's Proposed Electric Vehicle Charging Pilots for Schools and State Parks."
- Chapter 2, "EV Charge Schools":
  - Section A, "Introduction and Pilot Summary";
  - Section B, "Pilot Design";
  - Section C.9, "Summary of Construction and Procurement Costs";
  - Section D, "Program Marketing and Outreach for Site Host Acquisition";
  - Section E, "Ongoing Education at Schools";
  - Section F, "Pilot Benefits";

- 1                   – Section G, “Data and Reporting of Performance Accountability
- 2                   Metrics”; and
- 3                   – Section H, “Conclusion.”
- 4           • Chapter 3, “EV Charge Parks”:
- 5                   – Section A, “Introduction and Pilot Summary”
- 6                   – Section B, “Pilot Design”;
- 7                   – Section C.8, “Summary of Construction and Procurement Costs”;
- 8                   – Section D, “Site Selection, M&O”;
- 9                   – Section E, “Pilot Benefits”;
- 10                  – Section F, “Data and Reporting of Performance Accountability
- 11                  Metrics”; and
- 12                  – Section G, “Conclusion.”
- 13           • Chapter 4, “Program Costs, and Results of Operations, and
- 14                  Cost Recovery”:
- 15                   – Section B, “EV Charge Schools and EV Charge Parks Pilots
- 16                   Program Costs.”
- 17   Q 5   Does this conclude your statement of qualifications?
- 18   A 5   Yes, it does.

**PACIFIC GAS AND ELECTRIC COMPANY**  
**STATEMENT OF QUALIFICATIONS OF ELIZABETH (LIZ) CHAN**

Q 1 Please state your name and business address.

A 1 My name is Elizabeth (Liz) Chan, and my business address is Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am a Senior Regulatory Analyst in PG&E's Financial Forecasting and Revenue Requirements Department, within the Controller organization.

I am responsible for financial analysis and modeling, including the development of Results of Operations (RO) models for incremental cost recovery filings and developing related testimony.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Science degree in Environmental Economics and Policy from University of California, Berkeley in 2012. From 2012-2013, I provided analysis and decision support for various energy policy initiatives as a City Hall Fellow in the Power Enterprise Department of the San Francisco Public Utilities Commission. In August 2013, I joined PG&E as a Business Finance Associate Analyst. From 2013-2014, I provided financial planning, forecasting, and budgeting support to PG&E's Emergency Program leadership. From 2014-2016, I worked as a Business Finance Analyst in the Enterprise Planning & Governance group, and performed financial planning, reporting, and analysis to inform leadership decision-making. From 2016-2018, I worked as a Revenue Requirements Analyst, supporting major regulatory cases as a Witness Assistant, and performed numerous ad hoc financial analyses in support of regulatory strategy and commitments. In March 2018, I started my current position as a Senior Regulatory Analyst, where I am responsible for RO Witness assignments related to our incremental regulatory cases.

1 Q 4 What is the purpose of your testimony?  
2 A 4 I am sponsoring the following testimony in PG&E's Transportation  
3 Electrification for Schools and Parks Application:  
4 • Chapter 4, "Program Costs, and Results of Operations, and Cost  
5 Recovery":  
6 – Section C, "Results of Operations."  
7 Q 5 Does this conclude your statement of qualifications?  
8 A 5 Yes, it does.

1                   **PACIFIC GAS AND ELECTRIC COMPANY**  
2                   **STATEMENT OF QUALIFICATIONS OF BENEDICT CHUNG**

3    Q 1     Please state your name and business address.

4    A 1     My name is Benedict Chung, and my business address is Pacific Gas and  
5            Electric Company, 77 Beale Street, San Francisco, California.

6    Q 2     Briefly describe your responsibilities at Pacific Gas and Electric Company  
7            (PG&E).

8    A 2     I am the Director of Project and Construction Management for Electric  
9            Vehicles in PG&E's Electric Transmission Operations Department. My  
10           responsibilities are related to managing construction of electric vehicle (EV)  
11           charging infrastructure for PG&E's EV Charge Network Program and other  
12           EV charging infrastructure programs.

13   Q 3     Please summarize your educational and professional background.

14   A 3     I received my Bachelors of Science degree at the University of Illinois,  
15            Urbana/Champaign in General Engineering specializing in Robotics and  
16            Control Systems. I have been in the project and construction management  
17            profession for 20 years. Over the past six years, I have been the Director of  
18            Project and Contract Management at PG&E, where my team has been  
19            responsible for successfully delivering over \$3 billion of capital infrastructure  
20            projects and programs. Prior to my current role, I served in a similar  
21            capacity in aerospace defense, commercial construction, and the utility  
22            industry in the Midwest and on the East Coast.

23   Q 4     What is the purpose of your testimony?

24   A 4     I am sponsoring the following testimony in PG&E's Transportation and  
25            Electrification for Schools and State Parks Application:

- 26       • Chapter 2, "EV Charge Schools":
  - 27           – Section A.5, "Pilot Cost Summary";
  - 28           – Section C, "Procurement, Construction, and Operations."
- 29       • Chapter 3, "EV Charge Parks":
  - 30           – Section A.5, "Pilot Cost Summary";
  - 31           – Section C, "Procurement, Construction, and Operations."



- 1 • Chapter 4, “Program Costs, and Results of Operations, and
- 2 Cost Recovery”:
- 3 – Section B, “EV Charge Schools and EV Charge Parks Costs.”
- 4 Q 5 Does this conclude your statement of qualifications?
- 5 A 5 Yes, it does.

**PACIFIC GAS AND ELECTRIC COMPANY**  
**STATEMENT OF QUALIFICATIONS OF PAULINA PRA**

Q 1 Please state your name and business address.

A 1 My name is Paulina Pra, and my business address is Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California.

Q 2 Briefly describe your responsibilities at Pacific Gas and Electric Company (PG&E).

A 2 I am a Rate Analyst in the Electric Rates Department within Regulatory Affairs. I am responsible for analyzing costs, and preparing and operating PG&E's filing-quality electric ratemaking model.

Q 3 Please summarize your educational and professional background.

A 3 I received a Bachelor of Science degree in Business Administration from the University of Phoenix. I joined PG&E in 2015 in the Electric Rates Department.

Q 4 What is the purpose of your testimony?

A 4 I am sponsoring the following testimony in PG&E's Transportation Electrification for Schools and Parks Application:

- Chapter 4, "Program Costs, and Results of Operations, and Cost Recovery":
  - Section D, "Cost Recovery."

Q 5 Does this conclude your statement of qualifications?

A 5 Yes, it does.